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MARCH 1948

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MONTHLY WEATHER REVIEW

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MARCH 1948

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METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR MARCH 1948

AEROLOGICAL OBSERVATIONS

[For description of change in Table 1 and charts, see Review, January 1946, p. 6]

Table 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during March 1948*

STATIONS AND MEAN SURFACE PRESSURES

Standard pressure surface (mb.)	Albany, N. Y. (1,008.4 mb.)				Albuquerque, N. Mex. (833.2 mb.)				Apalachicola, Fla. (1,017.9 mb.)				Atlanta, Ga. (983.4 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	86	−1.1	76	31	1,620	6.2	41	31	5	17.6	87	31	300	12.5	71
1,000	31	150	(*)		31	96	(*)		31	157	17.4	83	31	157	(*)	
950	31	567	−1.0	68	31	536	(*)		31	598	16.1	74	31	590	12.4	65
900	31	990	−2.4	66	31	986	(*)		31	1,053	14.1	70	31	1,042	10.7	65
850	31	1,443	−4.0	62	31	1,455	(*)		31	1,534	11.9	65	31	1,517	9.2	58
800	31	1,920	−5.4	53	31	1,952	4.6	40	31	2,040	9.7	57	31	2,018	6.9	52
750	31	2,431	−6.8	53	31	2,479	.8	45	31	2,577	7.0	52	31	2,551	4.5	49
700	31	2,962	−8.9	54	31	3,024	−3.6	52	31	3,138	4.3	43	31	3,106	1.8	48
650	31	3,541	−11.5	51	31	3,610	−8.0	56	29	3,737	1.2	39	31	3,701	−1.5	43
600	31	4,143	−14.7	54	31	4,221	−12.7	57	29	4,376	−3.0	47	31	4,332	−5.5	45
550	31	4,804	−18.8	55	31	4,885	−17.1	52	29	5,058	−7.6	51	31	5,011	−9.9	46
500	31	5,500	−23.9		31	5,588	−22.0		29	5,794	−12.4		31	5,738	−14.7	46
450	30	6,264	−29.3		31	6,363	−27.6		28	6,504	−17.7		31	6,532	−20.1	51
400	30	7,087	−34.9		31	7,191	−33.2		28	7,462	−24.4		31	7,390	−25.9	
350	30	8,006	−41.1		30	8,124	−38.4		27	8,420	−31.4		31	8,343	−33.0	
300	30	9,039	−47.7		30	9,170	−44.2		27	9,492	−39.5		31	9,409	−41.1	
250	28	10,239	−52.8		28	10,385	−50.2		27	10,714	−49.0		29	10,624	−49.9	
200	24	11,653	−54.7		22	11,860	−53.6		26	12,151	−55.9		29	12,058	−56.2	
175	17	12,536	−54.3		14	12,737	−55.3		24	12,994	−58.5		26	12,921	−57.6	
150	8	13,571	−54.6		6	13,744	−54.9		21	13,944	−62.0		22	13,889	−59.0	
125									12	15,047	−65.7		14	15,008	−60.4	
100													7	16,381	−65.0	
80																

Standard pressure surface (mb.)	Auburn, Calif. (956.8 mb.)				Big Spring, Tex. (924.4 mb.)				Bismarck, N. Dak. (955.6 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	501	7.5	69	31	774	11.3	41	31	505	−7.9	90
1,000	31	135	(*)		31	107	(*)		31	147	(*)	
950	31	561	(*)		31	548	(*)		31	554	(*)	
900	31	1,004	5.3	66	31	996	11.4	40	31	972	−5.9	72
850	31	1,468	2.1	66	31	1,471	9.5	38	31	1,419	−6.5	65
800	31	1,955	−1.2	68	31	1,972	7.3	38	31	1,891	−7.7	60
750	31	2,470	−4.4	64	31	2,506	4.4	35	31	2,397	−9.6	64
700	31	3,007	−7.2	57	31	3,058	.8	36	31	2,922	−11.8	61
650	31	3,585	−10.6	52	31	3,651	−3.0	34	31	3,493	−14.9	58
600	30	4,195	−14.2	48	31	4,278	−7.4	35	31	4,088	−18.4	57
550	29	4,854	−18.3	48	30	4,949	−12.3	38	31	4,735	−22.7	
500	29	5,556	−23.3		30	5,670	−17.0		31	5,423	−27.3	
450	29	6,326	−28.7		30	6,460	−22.1		31	6,181	−32.8	
400	29	7,153	−34.4		30	7,311	−28.0		31	6,993	−38.7	
350	28	8,074	−41.2		30	8,256	−34.9		30	7,897	−45.3	
300	28	9,104	−48.0		30	9,316	−42.0		25	8,914	−51.1	
250	28	10,287	−54.6		30	10,528	−50.0		19	10,124	−54.6	
200	25	11,703	−55.9		21	11,934	−52.3		15	11,560	−51.5	
175	24	12,552	−53.9		8	12,768	−53.6		15	12,431	−49.4	
150	21	13,540	−54.1		6	13,783	−55.2		12	13,428	−48.8	
125	18	14,709	−55.8						9	14,631	−50.5	
100	13	16,120	−58.2									
80	8	17,529	−59.4									

Standard pressure surface (mb.)	Boise, Idaho (912.8 mb.)				Brownsville, Tex. (1,012.3 mb.)				Buffalo, N. Y. (991.1 mb.)				Caribou, Maine (994.3 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	868	3.9	60	31	6	18.4	85	31	221	0.1	76	31	191	−8.2	78
1,000	31	117	(*)		31	110	18.0	84	31	147	(*)		31	145	(*)	
950	31	540	(*)		31	555	16.2	79	31	563	.1	71	31	545	−7.6	66
900	31	983	4.5	51	31	1,010	16.5	67	31	990	−1.9	70	31	964	−9.8	67
850	31	1,455	1.6	51	31	1,497	16.0	46	31	1,443	−3.3	65	31	1,403	−11.6	65
800	31	1,931	−2.2	56	31	2,011	15.4	28	31	1,921	−4.9	61	31	1,867	−12.5	57
750	31	2,441	−6.0	62	31	2,560	12.7	30	31	2,431	−6.6	61	31	2,364	−13.5	56
700	31	2,977	−9.7	65	31	3,131	9.2	32	31	2,964	−9.2	58	31	2,882	−15.1	57
650	31	3,547	−13.3	66	31	3,739	4.8	33	31	3,540	−11.8	59	31	3,446	−17.5	56
600	30	4,148	−16.9	62	31	4,387	.1	36	31	4,143	−15.1	57	30	4,032	−21.0	
550	30	4,794	−21.3		31	5,075	−4.5	37	31	4,799	−19.0	54	30	4,671	−24.5	
500	30	5,491	−26.2		31	5,821	−9.5	36	29	5,500	−23.5		30	5,358	−28.6	
450	29	6,247	−31.3		31	6,631	−15.0	37	29	6,272	−28.8		30	6,110	−33.1	
400	29	7,071	−36.9		31	7,508	−21.4		29	7,096	−34.6		30	6,926	−38.2	
350	29	7,981	−43.6		31	8,477	−28.9		26	8,006	−41.3		29	7,829	−44.8	
300	29	9,000	−51.1		31	9,558	−37.3		25	9,030	−47.6		29	8,847	−50.3	
250	23	10,146	−55.7		30	10,792	−47.2		22	10,213	−51.6		28	10,033	−52.2	
200	15	11,593	−52.3		29	12,235	−55.5		15	11,667	−54.3		26	11,486	−51.3	
175	9	12,460	−49.4		24	13,084	−58.7		11	12,561	−53.1		23	12,361	−50.4	
150	5	13,474	−50.7		14	14,052	−62.3		5	13,561	−51.2		20	13,378	−51.1	
125					7	15,144	−66.6						9	14,571	−50.9	
100													5	15,950	−52.1	

Standard pressure surface (mb.)	Charleston, S. C. (1,017.7 mb.)				Ciudad Victoria, Mexico (969.9 mb.)				Columbia, Mo. (986.7 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	13	14.1	86	30	335	24.6	49	30	239	4.8	71
1,000	31	161	14.7	83	30	63	(*)		30	126	(*)	
950	31	600	14.1	76	30	519	23.2	50	30	550	3.7	70
900	31	1,051	11.9	70	30	984	19.4	55	30	984	2.4	68
850	31	1,529	9.4	63	30	1,473	16.1	62	30	1,445	1.8	65
800	31	2,030	7.2	56	30	1,987	13.9	61	30	1,933	.5	60
750	31	2,566	5.1	44	30	2,536	12.1	51	30	2,456	−1.6	58
700	31	3,119	2.4		29	3,106	9.3	45	30	2,997	−4.0	57
650	31	3,719	−1.0		29	3,717	5.2	40	29	3,579	−7.7	55
600	31	4,349	−5.1		29	4,364	.4	38	29	4,193	−11.9	55
550	31	5,029	−9.5		29	5,059	−4.3	40	29	4,854	−16.7	53
500	31	5,758	−14.4		29	5,801	−9.1		29	5,562	−21.7	
450	30	6,555	−19.4		29	6,618	−14.4		29	6,338	−27.1	
400	29	7,418	−25.3		29	7,493	−20.6		28	7,169	−32.9	
350	29	8,370	−32.4		29	8,465	−28.5		28	8,091	−39.4	
300	29	9,439	−40.5		29	9,550	−37.4		28	9,131	−46.3	
250	28	10,660	−49.5		23	10,790	−47.0		24	10,321	−52.4	
200	22	12,128	−57.1						11	11,763	−52.9	
175	16	12,996	−59.1						6	12,601	−49.9	
150	5	14,004	−61.4						6	13,606	−51.3	
125									5	14,769	−53.4	
100												

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TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during March 1948*—Continued

Standard pressure surface (mb.)	Dodge City, Kans. (921.8 mb.)				El Paso, Tex. (878.6 mb.)				Ely, Nev. (803.8 mb.)				Fort Worth, Tex. (989.8 mb.)				Glasgow, Mont. (938.0 mb.)				Grand Junction, Colo. (847.7 mb.)				Great Falls, Mont. (883.3 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	787	1.5	74	31	1,195	12.4	26	31	1,908	−2.2	66	31	211	12.1	61	31	648	−4.3	75	31	1,474	2.1	69	31	1,128	−3.3	68
1,000	30	121	(*)	----	31	92	(*)	----	31	133	(*)	----	31	122	(*)	----	31	135	(*)	----	31	117	(*)	----	31	130	(*)	----
950	30	541	(*)	----	31	537	(*)	----	31	559	(*)	----	31	556	11.3	57	31	546	(*)	----	31	547	(*)	----	31	550	(*)	----
900	30	978	3.2	68	31	996	(*)	----	31	1,001	(*)	----	31	1,003	9.5	56	31	972	−3.6	67	31	989	(*)	----	31	981	(*)	----
850	30	1,441	1.9	58	31	1,471	11.3	27	31	1,460	(*)	----	31	1,476	8.8	49	31	1,422	−5.6	65	31	1,450	(*)	----	31	1,430	−3.9	61
800	30	1,929	.7	52	31	1,973	7.3	32	31	1,947	(*)	----	31	1,976	7.3	42	31	1,896	−7.3	62	31	1,940	−.1	61	31	1,906	−6.4	62
750	30	2,449	−1.9	50	31	2,504	3.4	33	31	2,462	−4.3	60	31	2,513	4.3	34	31	2,400	−9.2	59	31	2,455	−3.9	65	31	2,414	−8.7	65
700	30	2,990	−4.9	48	31	3,056	−.6	35	31	2,998	−8.5	66	31	3,063	.9	34	31	2,928	−12.0	59	31	2,994	−7.9	69	31	2,941	−11.5	67
650	30	3,572	−8.5	47	31	3,644	−5.1	38	31	3,572	−12.4	67	31	3,658	−2.8	37	31	3,497	−15.2	60	31	3,569	−11.5	75	31	3,510	−14.8	67
600	30	4,185	−12.5	44	31	4,266	−9.3	36	31	4,176	−16.1	61	31	4,284	−7.2	41	31	4,091	−19.1	62	31	4,173	−15.8	76	31	4,107	−18.8	67
550	30	4,843	−17.4	49	31	4,935	−13.5	----	31	4,828	−20.1	54	31	4,958	−12.0	40	31	4,735	−23.2	----	31	4,826	−20.0	74	30	4,752	−23.3	----
500	30	5,550	−22.8	----	31	5,652	−18.2	----	30	5,525	−24.8	----	31	5,679	−17.0	----	31	5,425	−28.0	----	31	5,523	−25.2	----	30	5,440	−28.1	----
450	29	6,317	−28.5	----	30	6,438	−23.4	----	30	6,287	−30.3	----	30	6,468	−22.8	----	31	6,177	−33.5	----	31	6,284	−30.8	----	30	6,191	−33.6	----
400	29	7,144	−34.5	----	30	7,282	−29.5	----	30	7,110	−36.7	----	30	7,317	−28.8	----	31	6,990	−39.3	----	31	7,104	−37.1	----	29	7,004	−39.7	----
350	29	8,064	−40.9	----	30	8,220	−36.6	----	30	8,021	−43.4	----	30	8,259	−35.6	----	31	7,891	−45.9	----	29	8,020	−43.6	----	28	7,896	−46.4	----
300	29	9,096	−47.1	----	30	9,271	−44.2	----	29	9,047	−49.3	----	29	9,312	−43.4	----	30	8,898	−52.6	----	29	9,043	−49.3	----	28	8,906	−52.2	----
250	26	10,304	−51.5	----	29	10,473	−53.0	----	25	10,234	−53.1	----	28	10,516	−51.5	----	29	10,059	−55.0	----	27	10,230	−52.2	----	26	10,075	−55.2	----
200	22	11,752	−53.5	----	20	11,867	−55.2	----	22	11,676	−54.4	----	27	11,946	−55.4	----	24	11,485	−51.6	----	27	11,667	−52.5	----	21	11,513	−52.8	----
175	16	12,608	−53.1	----	15	12,716	−56.8	----	17	12,529	−52.5	----	25	12,793	−56.2	----	20	12,338	−50.0	----	24	12,538	−52.0	----	13	12,378	−49.8	----
150	12	13,601	−52.8	----	11	13,684	−58.6	----	9	13,556	−54.1	----	22	13,765	−57.7	----	19	13,346	−50.0	----	18	13,546	−53.0	----	9	13,386	−49.8	----
125	----	----	----	----	7	14,797	−60.5	----	6	14,745	−57.5	----	14	14,886	−60.7	----	12	14,523	−51.1	----	12	14,694	−53.6	----	5	14,585	−50.5	----
100	----	----	----	----	----	----	----	----	----	----	----	----	6	16,295	−63.6	----	5	15,970	−52.6	----	6	16,122	−54.9	----	----	----	----	----

Standard pressure surface (mb.)	Greensboro, N. C. (987.0 mb.)				Hatteras, N. C. (1,019.6 mb.)				Havana, Cuba[1] (-----mb.)				Honolulu, T. H. (1,015.0 mb.)				Huntington, W. Va. (997.7 mb.)				International Falls, Minn. (974.9 mb.)				Joliet, Ill. (995.3 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	273	10.3	67	31	3	12.5	83	----	----	----	----	31	3	24.4	63	30	172	8.5	68	31	360	−6.4	74	31	178	1.6	78
1,000	31	163	(*)	----	31	165	12.7	79	----	----	----	----	31	133	22.3	65	30	151	(*)	----	31	158	(*)	----	31	137	(*)	----
950	31	593	10.4	62	31	599	11.0	71	----	----	----	----	31	580	18.6	72	30	579	8.2	60	31	559	−5.7	66	31	554	1.4	71
900	31	1,039	8.0	62	31	1,045	9.0	67	----	----	----	----	31	1,039	15.2	76	30	1,021	5.5	64	31	983	−7.6	65	31	986	.2	65
850	31	1,509	5.9	60	31	1,518	7.0	56	----	----	----	----	31	1,521	12.1	75	30	1,486	3.1	65	31	1,427	−8.6	59	31	1,443	−1.3	64
800	31	2,003	3.8	54	31	2,015	4.9	49	----	----	----	----	31	2,027	9.9	66	30	1,977	1.6	56	31	1,896	−9.3	57	31	1,926	−2.2	54
750	31	2,531	1.5	46	31	2,546	3.0	41	----	----	----	----	31	2,569	7.1	57	30	2,501	−1.0	54	31	2,399	−11.0	56	31	2,443	−3.7	51
700	31	3,079	−1.0	40	31	3,096	.2	40	----	----	----	----	31	3,126	4.2	45	30	3,042	−4.0	51	31	2,921	−13.0	55	31	2,979	−6.4	54
650	31	3,667	−4.3	39	30	3,689	−3.0	38	----	----	----	----	31	3,727	.9	38	30	3,627	−7.0	50	31	3,488	−15.7	51	31	3,564	−9.5	52
600	31	4,294	−8.0	38	30	4,316	−6.7	36	----	----	----	----	31	4,364	−2.8	33	30	4,244	−10.8	51	31	4,082	−18.9	50	31	4,169	−13.0	51
550	31	4,965	−12.8	40	30	4,992	−11.3	----	----	----	----	----	31	5,047	−7.1	36	29	4,909	−15.3	55	31	4,727	−23.0	----	31	4,830	−17.3	56
500	31	5,684	−17.4	41	29	5,715	−16.2	----	----	----	----	----	31	5,784	−12.3	40	29	5,620	−20.1	54	31	5,417	−27.6	----	31	5,534	−22.3	----
450	31	6,473	−22.9	----	29	6,506	−21.6	----	----	----	----	----	31	6,590	−17.9	37	29	6,402	−25.3	----	31	6,170	−32.9	----	31	6,307	−27.8	----
400	31	7,319	−28.3	----	29	7,359	−27.4	----	----	----	----	----	31	7,452	−24.2	----	27	7,249	−31.1	----	30	6,986	−38.9	----	31	7,136	−33.9	----
350	30	8,266	−35.0	----	28	8,313	−33.7	----	----	----	----	----	31	8,412	−31.3	----	26	8,182	−38.2	----	30	7,888	−45.3	----	31	8,058	−40.7	----
300	28	9,332	−42.6	----	28	9,376	−41.3	----	----	----	----	----	31	9,486	−39.2	----	26	9,226	−45.7	----	30	8,902	−51.4	----	30	9,091	−47.5	----
250	24	10,533	−51.0	----	25	10,596	−50.4	----	----	----	----	----	31	10,713	−46.6	----	23	10,411	−53.0	----	24	10,102	−53.8	----	29	10,281	−53.0	----
200	16	11,958	−57.6	----	20	12,044	−58.2	----	----	----	----	----	31	12,172	−53.2	----	17	11,833	−56.8	----	20	11,554	−51.4	----	19	11,726	−54.2	----
175	13	12,804	−58.2	----	12	12,879	−57.9	----	----	----	----	----	30	13,025	−56.0	----	14	12,688	−55.7	----	18	12,438	−49.8	----	16	12,602	−53.8	----
150	13	13,771	−59.2	----	7	13,858	−60.6	----	----	----	----	----	30	13,996	−59.7	----	12	13,654	−56.2	----	13	13,455	−49.3	----	12	13,616	−54.5	----
125	7	14,936	−62.3	----	----	----	----	----	----	----	----	----	30	15,125	−63.8	----	5	14,854	−61.5	----	11	14,658	−50.5	----	----	----	----	----
100	----	----	----	----	----	----	----	----	----	----	----	----	28	16,475	−67.9	----	----	----	----	----	----	----	----	----	----	----	----	----
80	----	----	----	----	----	----	----	----	----	----	----	----	20	17,819	−68.6	----	----	----	----	----	----	----	----	----	----	----	----	----
60	----	----	----	----	----	----	----	----	----	----	----	----	16	19,562	−64.2	----	----	----	----	----	----	----	----	----	----	----	----	----
50	----	----	----	----	----	----	----	----	----	----	----	----	13	20,680	−62.7	----	----	----	----	----	----	----	----	----	----	----	----	----
40	----	----	----	----	----	----	----	----	----	----	----	----	7	22,060	−59.3	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Lake Charles, La. (1,015.1 mb.)				Lander, Wyo. (823.1 mb.)				Las Vegas, Nev. (945.4 mb.)				Little Rock, Ark. (1,006.3 mb.)				Mazatlan, Mexico (1,009.5 mb.)				Medford, Oreg. (968.0 mb.)				Merida, Mexico (1,008.5 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	5	15.7	84	31	1,696	−2.9	63	31	574	12.7	26	31	79	10.2	71	31	14	21.2	74	31	401	7.0	72	31	27	29.2	55
1,000	31	131	15.9	80	31	120	(*)	----	31	98	(*)	----	31	129	(*)	----	31	96	20.3	69	31	132	(*)	----	31	103	28.5	56
950	31	570	13.9	76	31	546	(*)	----	31	535	(*)	----	31	560	9.5	63	31	547	21.5	40	31	557	6.6	68	31	558	25.4	57
900	31	1,022	12.9	68	31	985	(*)	----	31	985	10.6	25	31	1,004	8.1	61	31	1,008	20.3	34	31	996	3.4	71	31	1,030	21.9	63
850	31	1,502	11.8	57	31	1,438	(*)	----	31	1,455	6.6	28	31	1,475	6.6	60	31	1,498	17.6	27	31	1,457	−.1	76	31	1,524	18.1	70
800	31	2,008	9.8	56	31	1,921	−2.5	57	31	1,950	2.4	34	31	1,972	5.0	55	31	2,013	14.3	----	31	1,939	−3.6	79	31	2,041	14.7	70
750	31	2,548	7.8	46	31	2,436	−5.4	54	31	2,471	−1.9	40	31	2,502	2.8	47	31	2,558	10.7	----	31	2,451	−6.7	80	31	2,591	12.0	56
700	31	3,108	4.9	39	31	2,968	−8.9	56	31	3,013	−6.0	45	31	3,053	−.1	44	31	3,125	6.9	----	31	2,982	−9.6	74	30	3,160	10.2	----
650	31	3,713	1.2	38	31	3,543	−12.7	61	31	3,592	−10.0	48	31	3,644	−3.7	46	30	3,728	2.6	----	31	3,556	−12.5	66	30	3,774	6.9	----
600	31	4,349	−3.2	39	31	4,143	−16.8	59	31	4,204	−13.8	46	31	4,270	−7.6	43	30	4,367	−1.8	----	31	4,159	−16.2	67	30	4,425	3.1	----
550	31	5,033	−8.0	42	31	4,795	−21.4	----	30	4,861	−18.1	44	31	4,943	−11.9	41	29	5,054	−6.1	----	31	4,808	−20.5	67	29	5,124	−1.4	----
500	31	5,766	−13.2	38	31	5,486	−26.6	----	30	5,565	−23.0	----	30	5,662	−16.8	46	29	5,796	−10.7	----	31	5,507	−25.4	----	27	5,873	−6.9	----
450	31	6,567	−18.9	42	31	6,244	−32.4	----	30	6,336	−28.3	----	30	6,452	−22.5	----	28	6,604	−16.2	----	31	6,267	−30.7	----	27	6,694	−13.0	----
400	31	7,428	−24.9	----	31	7,057	−38.9	----	30	7,164	−34.4	----	29	7,297	−28.6	----	28	7,475	−22.4	----	31	7,090	−36.4	----	27	7,573	−20.0	----
350	30	8,384	−31.7	----	31	7,959	−45.8	----	29	8,089	−40.7	----	28	8,244	−35.2	----	28	8,443	−30.0	----	30	8,010	−42.5	----	26	8,545	−28.3	----
300	30	9,455	−40.0	----	31	8,970	−51.8	----	29	9,123	−47.4	----	27	9,301	−42.2	----	28	9,522	−38.6	----	30	9,035	−49.5	----	26	9,629	−37.4	----
250	28	10,672	−49.4	----	29	10,137	−55.3	----	28	10,313	−53.8	----	22	10,507	−49.4	----	17	10,788	−47.6	----	30	10,211	−55.5	----	25	10,861	−47.1	----
200	19	12,107	−55.6	----	26	11,562	−52.8	----	27	11,741	−55.7	----	17	11,956	−53.5	----	----	----	----	----	28	11,626	−54.8	----	22	12,307	−56.7	----
175	16	12,955	−57.5	----	19	12,431	−51.8	----	27	12,593	−54.7	----	10	12,824	−54.7	----	----	----	----	----	25	12,481	−53.1	----	17	13,142	−60.8	----
150	12	13,910	−60.0	----	14	13,442	−52.6	----	26	13,581	−55.4	----	7	13,748	−54.6	----	----	----	----	----	19	13,479	−52.8	----	7	14,097	−64.4	----
125	9	15,038	−64.4	----	7	14,660	−54.2	----	23	14,748	−57.9	----	----	----	----	----	----	----	----	----	12	14,655	−54.8	----	----	----	----	----
100	----	----	----	----	6	16,085	−56.9	----	17	16,163	−60.5	----	----	----	----	----	----	----	----	----	7	16,082	−56.1	----	----	----	----	----
80	----	----	----	----	5	17,496	−57.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during March 1948*—Continued

Standard pressure surface (mb.)	Miami, Fla. (1,018.3 mb.)				Nantucket, Mass. (1,017.2 mb.)				Nashville, Tenn. (995.6 mb.)				New Orleans, La. (1,015.9 mb.)				North Platte, Nebr. (914.6 mb.)				Oakland, Calif. (1,016.1 mb.)				Ogden, Utah (861.3 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	4	23.2	77	31	14	2.5	85	31	180	11.4	66	30	2	17.3	85	31	849	−0.8	72	31	6	10.9	73	31	1,355	1.6	62
1,000	31	163	22.5	77	31	150	2.4	81	31	142	(*)	----	30	137	17.3	81	31	123	(*)	----	31	139	10.0	74	31	130	(*)	----
950	31	610	19.7	76	31	573	2.8	74	31	571	9.7	63	30	577	15.1	80	31	543	(*)	----	31	569	7.3	71	31	556	(*)	----
900	31	1,072	16.8	74	31	1,002	.4	68	31	1,017	7.5	64	30	1,032	13.8	70	31	976	−.2	70	31	1,007	5.0	69	31	1,000	(*)	----
850	31	1,558	13.9	71	31	1,460	−1.0	64	31	1,487	5.9	62	30	1,513	12.1	60	31	1,433	−1.6	66	31	1,471	2.1	67	31	1,460	1.4	58
800	31	2,067	11.3	60	31	1,942	−3.1	60	31	1,982	4.1	57	30	2,020	9.9	54	31	1,914	−3.1	61	31	1,958	−.2	58	31	1,946	−1.9	58
750	31	2,607	9.3	43	31	2,455	−4.7	54	31	2,508	1.7	55	30	2,563	7.8	47	31	2,428	−5.2	60	31	2,480	−2.6	49	31	2,459	−5.9	64
700	31	3,175	7.4	----	31	2,992	−6.7	53	31	3,058	−1.1	46	30	3,120	4.8	44	31	2,963	−7.8	59	31	3,017	−5.6	45	31	2,992	−9.8	66
650	31	3,781	4.0	----	30	3,569	−9.7	54	31	3,647	−4.1	48	29	3,725	1.4	44	31	3,539	−11.6	62	31	3,599	−9.3	44	31	3,566	−13.3	65
600	31	4,426	.1	----	30	4,179	−13.2	55	31	4,273	−8.0	50	29	4,362	−2.5	43	31	4,144	−15.8	62	31	4,209	−13.1	45	31	4,165	−17.1	66
550	31	5,118	−4.1	----	30	4,837	−17.4	54	30	4,946	−12.4	49	29	5,048	−7.0	44	31	4,797	−20.0	59	31	4,871	−17.4	48	31	4,815	−21.2	----
500	31	5,863	−9.0	----	30	5,545	−21.7	----	29	5,670	−17.5	45	28	5,784	−12.0	42	31	5,494	−24.9	----	31	5,574	−22.1	----	31	5,509	−26.1	----
450	31	6,678	−14.7	----	30	6,318	−26.9	----	27	6,450	−23.0	----	26	6,595	−17.9	----	31	6,257	−30.7	----	31	6,349	−27.3	----	31	6,266	−31.7	----
400	29	7,550	−21.1	----	30	7,154	−32.6	----	27	7,301	−29.1	----	26	7,456	−24.2	----	31	7,076	−37.1	----	31	7,180	−33.2	----	31	7,086	−37.9	----
350	29	8,520	−28.9	----	30	8,081	−39.2	----	27	8,242	−35.8	----	24	8,409	−31.5	----	30	7,990	−43.5	----	31	8,105	−40.0	----	31	7,992	−44.4	----
300	27	9,603	−37.8	----	28	9,141	−45.5	----	25	9,298	−43.2	----	21	9,498	−38.9	----	28	9,014	−50.4	----	31	9,141	−47.3	----	31	9,010	−50.4	----
250	27	10,832	−47.6	----	20	10,321	−51.1	----	20	10,494	−51.7	----	21	10,726	−47.7	----	27	10,197	−53.4	----	31	10,326	−54.0	----	30	10,194	−53.9	----
200	23	12,284	−55.9	----	8	11,737	−56.0	----	17	11,900	−56.9	----	19	12,175	−56.5	----	25	11,636	−53.3	----	27	11,742	−55.1	----	30	11,626	−53.3	----
175	20	13,130	−60.0	----	----	----	----	----	11	12,744	−56.2	----	18	13,021	−58.9	----	17	12,499	−52.1	----	24	12,593	−53.4	----	27	12,485	−52.3	----
150	15	14,077	−63.7	----	----	----	----	----	6	13,697	−55.6	----	16	13,978	−60.9	----	9	13,550	−52.2	----	22	13,590	−53.8	----	24	13,481	−52.3	----
125	6	15,164	−68.0	----	----	----	----	----	----	----	----	----	11	15,085	−64.9	----	6	14,743	−54.3	----	17	14,761	−55.4	----	20	14,672	−54.4	----
100	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	12	16,196	−57.4	----	14	16,094	−55.5	----
80	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	10	17,608	−59.1	----	9	17,497	−56.5	----

Standard pressure surface (mb.)	Oklahoma City, Okla. (967.9 mb.)				Omaha, Nebr. (978.4 mb.)				Phoenix, Ariz. (973.0 mb.)				Pittsburgh, Pa. (972.2 mb.)				Portland, Maine (1,016.0 mb.)				Rapid City, S. Dak. (900.6 mb.)				St. Cloud, Minn. (978.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	391	7.2	75	30	308	1.8	73	31	339	15.0	34	31	382	5.2	65	31	20	−1.3	76	29	980	−3.1	75	31	317	−5.4	85
1,000	30	118	(*)	----	30	128	(*)	----	31	106	(*)	----	31	148	(*)	----	31	145	−.7	73	29	137	(*)	----	31	139	(*)	----
950	30	542	7.4	70	30	543	.3	76	31	545	15.7	27	31	576	4.5	66	31	557	−1.7	67	29	554	(*)	----	31	549	−3.8	71
900	30	987	6.2	64	30	974	−.8	70	31	998	12.1	28	31	1,007	2.6	66	31	984	−3.5	64	29	985	−7.8	80	31	971	−4.2	61
850	30	1,455	5.1	57	30	1,430	−1.5	60	31	1,473	8.0	32	31	1,469	.5	64	31	1,434	−5.3	60	29	1,438	−2.8	66	31	1,421	−5.1	59
800	30	1,949	4.1	50	30	1,913	−2.2	61	31	1,969	3.9	37	31	1,953	−1.6	65	31	1,909	−6.6	54	29	1,917	−5.0	62	30	1,898	−6.0	55
750	30	2,474	1.4	46	30	2,430	−4.5	58	31	2,497	−.3	42	31	2,474	−3.7	61	31	2,415	−8.2	51	29	2,427	−7.0	57	30	2,406	−7.7	49
700	30	3,024	−1.9	39	30	2,964	−7.4	61	31	3,039	−4.0	41	31	3,008	−6.6	60	31	2,945	−10.0	49	29	2,958	−9.2	51	30	2,937	−9.9	50
650	30	3,610	−5.8	42	30	3,544	−10.6	63	31	3,625	−7.5	38	31	3,592	−9.4	56	31	3,518	−12.7	51	29	3,535	−12.5	52	30	3,511	−12.7	53
600	30	4,232	−9.9	45	30	4,151	−14.3	62	31	4,239	−11.1	36	31	4,199	−12.6	55	31	4,121	−16.0	56	29	4,134	−16.5	56	29	4,110	−16.6	55
550	29	4,897	−14.8	45	30	4,807	−18.6	59	31	4,905	−15.4	----	31	4,866	−16.7	53	31	4,772	−20.0	60	29	4,785	−20.9	60	28	4,764	−20.6	----
500	28	5,609	−19.6	44	30	5,509	−23.9	----	31	5,615	−20.3	----	31	5,567	−21.7	----	31	5,472	−24.7	----	29	5,481	−25.7	----	28	5,461	−25.6	----
450	28	6,389	−25.2	----	29	6,277	−29.4	----	31	6,397	−25.6	----	31	6,346	−26.7	----	30	6,227	−30.2	----	29	6,243	−31.1	----	28	6,221	−30.9	----
400	26	7,232	−30.8	----	29	7,104	−35.3	----	31	7,233	−31.7	----	31	7,177	−32.6	----	30	7,052	−36.1	----	28	7,067	−37.3	----	28	7,043	−36.9	----
350	25	8,177	−37.2	----	29	8,020	−42.1	----	31	8,164	−38.4	----	31	8,104	−39.2	----	29	7,968	−42.3	----	28	7,976	−44.0	----	27	7,962	−43.5	----
300	22	9,226	−44.2	----	28	9,049	−49.0	----	30	9,209	−45.6	----	31	9,144	−46.1	----	29	8,995	−48.9	----	26	8,993	−50.0	----	25	8,984	−50.6	----
250	13	10,444	−51.3	----	26	10,228	−53.8	----	28	10,415	−52.9	----	29	10,335	−53.0	----	28	10,173	−53.4	----	25	10,169	−53.4	----	25	10,160	−54.0	----
200	7	11,885	−54.0	----	21	11,678	−53.3	----	22	11,848	−55.3	----	27	11,762	−55.5	----	24	11,604	−53.7	----	25	11,610	−51.6	----	20	11,598	−52.3	----
175	----	----	----	----	15	12,540	−52.0	----	19	12,690	−55.5	----	22	12,607	−54.9	----	22	12,457	−53.4	----	21	12,467	−50.8	----	19	12,459	−50.8	----
150	----	----	----	----	9	13,542	−52.2	----	13	13,689	−56.3	----	15	13,584	−55.0	----	19	13,469	−54.1	----	17	13,475	−50.5	----	17	13,461	−51.0	----
125	----	----	----	----	----	----	----	----	9	14,872	−59.9	----	----	----	----	----	12	14,649	−55.6	----	5	14,631	−52.0	----	10	14,643	−51.7	----
100	----	----	----	----	----	----	----	----	6	16,267	−63.7	----	----	----	----	----	----	----	----	----	----	----	----	----	5	16,079	−50.6	----
80	----	----	----	----	----	----	----	----	5	17,640	−64.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	San Antonio, Tex. (985.2 mb.)				San Juan, P. R. (1,016.5 mb.)				Santa Maria, Calif. (1,008.5 mb.)				Sault Ste. Marie, Mich. (990.6 mb.)				Spokane, Wash. (928.3 mb.)				Swan Island, W. I. (1,013.8 mb.)				Tacubaya, Mexico (772.3 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	240	15.5	62	30	15	23.8	77	31	71	10.6	75	31	221	−5.7	79	30	721	2.7	67	31	10	25.6	78	29	2,306	19.7	36
1,000	31	111	(*)	----	30	158	22.6	78	31	141	10.2	74	31	145	(*)	----	30	113	(*)	----	31	131	24.7	78	29	12	(*)	----
950	31	552	14.6	61	30	604	19.1	81	31	572	8.1	67	31	554	−5.7	69	30	534	(*)	----	31	584	21.0	81	29	480	(*)	----
900	31	1,003	13.0	62	30	1,066	15.7	80	31	1,011	6.2	61	31	971	−6.7	65	30	970	1.4	63	31	1,046	18.1	69	29	962	(*)	----
850	31	1,483	12.0	58	30	1,550	12.8	77	31	1,477	3.2	64	31	1,416	−7.4	57	30	1,427	−2.0	64	31	1,534	15.1	60	29	1,465	(*)	----
800	31	1,990	10.6	46	30	2,059	11.4	57	31	1,966	.5	35	31	1,888	−8.2	53	30	1,906	−5.7	66	31	2,046	13.2	43	29	1,999	(*)	----
750	31	2,530	8.4	34	30	2,604	10.0	39	31	2,487	−1.4	48	31	2,393	−10.0	52	30	2,412	−8.8	68	31	2,593	12.0	----	29	2,558	17.6	38
700	31	3,092	5.2	31	30	3,167	7.8	27	31	3,029	−4.1	40	31	2,917	−12.2	54	30	2,940	−12.1	66	31	3,162	9.7	----	29	3,143	12.8	43
650	31	3,692	1.3	29	30	3,777	5.1	----	31	3,615	−7.3	38	31	3,487	−14.6	53	30	3,508	−15.4	64	30	3,779	6.4	----	29	3,761	7.5	50
600	31	4,330	−3.3	----	30	4,427	1.4	----	31	4,229	−10.8	34	30	4,090	−17.6	55	30	4,103	−19.0	64	30	4,424	2.4	----	28	4,414	1.9	58
550	31	5,011	−8.1	----	30	5,119	−2.9	----	31	4,896	−15.0	----	30	4,740	−21.3	----	30	4,747	−23.1	----	30	5,124	−1.8	----	28	5,109	−3.5	57
500	31	5,745	−13.2	----	30	5,866	−7.7	----	31	5,606	−20.3	----	29	5,429	−25.7	----	30	5,437	−27.9	----	30	5,873	−6.9	----	28	5,857	−8.7	44
450	31	6,543	−18.9	----	28	6,686	−13.7	----	31	6,384	−25.9	----	28	6,197	−30.7	----	30	6,188	−33.0	----	30	6,698	−12.4	----	26	6,673	−14.3	----
400	31	7,406	−24.7	----	28	7,559	−20.7	----	31	7,221	−31.9	----	28	7,021	−36.3	----	29	7,008	−38.7	----	30	7,577	−18.8	----	26	7,547	−21.0	----
350	31	8,364	−31.5	----	28	8,532	−28.2	----	29	8,148	−38.4	----	27	7,933	−43.0	----	29	7,912	−45.4	----	30	8,556	−26.7	----	24	8,522	−29.0	----
300	31	9,437	−39.4	----	27	9,620	−36.2	----	29	9,191	−45.7	----	22	8,978	−49.0	----	29	8,924	−51.7	----	30	9,649	−35.1	----	24	9,601	−37.7	----
250	31	10,660	−48.7	----	26	10,866	−44.4	----	25	10,371	−53.2	----	10	10,177	−52.6	----	28	10,097	−55.4	----	30	10,896	−44.2	----	22	10,830	−47.2	----
200	31	12,100	−55.7	----	25	12,328	−53.3	----	21	11,779	−56.3	----	5	11,585	−51.3	----	24	11,523	−52.8	----	30	12,357	−54.7	----	----	----	----	----
175	29	12,948	−57.6	----	23	13,182	−58.2	----	18	12,637	−54.2	----	5	12,457	−49.5	----	19	12,383	−50.6	----	28	13,197	−60.3	----	----	----	----	----
150	23	13,906	−60.4	----	15	14,150	−63.3	----	17	13,625	−55.0	----	----	----	----	----	17	13,388	−50.7	----	25	14,144	−66.3	----	----	----	----	----
125	11	15,057	−64.0	----	----	----	----	----	15	14,787	−57.0	----	----	----	----	----	9	14,612	−52.4	----	12	15,236	−72.4	----	----	----	----	----
100	----	----	----	----	----	----	----	----	9	16,171	−57.7	----	----	----	----	----	8	16,049	−53.6	----	----	----	----	----	----	----	----	----
80	----	----	----	----	----	----	----	----	6	17,558	−58.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during March 1948*—Continued

Standard pressure surface (mb.)	Tampa, Fla. (1,017.7 mb.)				Tatoosh Island, Wash. (1,009.8 mb.)				Toledo, Ohio (994.4 mb.)				Washington, D. C. (1,017.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	9	20.7	84	31	31	5.9	80	31	191	1.1	80	31	25	8.5	64
1,000	21	161	19.8	84	31	111	5.4	79	31	143	(*)		31	163	7.8	61
950	31	604	17.8	80	31	533	2.8	76	31	559	.9	71	31	589	6.8	57
900	31	1,064	15.0	78	31	964	.0	77	31	990	−.5	67	31	1,029	4.9	59
850	31	1,546	12.4	73	31	1,419	−3.0	75	31	1,446	−1.7	63	31	1,493	2.9	59
800	31	2,053	10.1	60	31	1,897	−5.6	73	31	1,928	−2.9	58	31	1,983	1.0	55
750	31	2,589	7.6	51	31	2,407	−8.5	71	31	2,445	−4.5	56	31	2,505	−.9	46
700	31	3,153	5.0	43	31	2,933	−11.1	64	31	2,979	−7.1	56	31	3,049	−3.3	43
650	31	3,754	2.0	34	31	3,505	−14.1	60	31	3,561	−10.1	56	31	3,635	−6.4	44
600	30	4,397	−1.7	34	31	4,103	−18.0	62	31	4,167	−13.5	54	31	4,253	−10.3	43
550	30	5,084	−6.0	40	31	4,748	−22.4		31	4,826	−17.7	53	30	4,921	−14.8	44
500	30	5,824	−10.6	38	31	5,441	−26.7		31	5,531	−22.4		30	5,634	−19.8	44
450	30	6,634	−16.1	42	31	6,197	−32.1		30	6,300	−28.0		30	6,412	−24.9	
400	30	7,503	−22.9		31	7,016	−37.9		29	7,127	−34.3		30	7,254	−30.5	
350	30	8,467	−30.3		31	7,924	−43.6		28	8,038	−41.2		30	8,189	−37.1	
300	30	9,543	−39.0		31	8,946	−49.3		26	9,054	−48.3		30	9,237	−44.7	
250	30	10,766	−48.7		30	10,130	−52.6		25	10,231	−53.5		27	10,435	−52.5	
200	28	12,202	−56.8		29	11,567	−51.3		22	11,658	−54.6		23	11,845	−56.4	
175	26	13,042	−59.6		27	12,435	−49.4		17	12,494	−52.6		19	12,685	−55.3	
150	24	14,008	−62.7		26	13,447	−49.3		10	13,521	−53.7		15	13,673	−56.5	
125	22	15,113	−67.5		19	14,651	−49.8						10	14,810	−58.3	
100	10	16,436	−71.9		12	16,128	−52.5						7	16,198	−60.6	
80					5	17,558	−53.3						6	17,583	−62.8	

(*)Temperature and relative humidity data for this level are not available or are available only for certain days. See note entitled "Change in Summarization of Radiosonde Data," p. 6, in the January 1946 issue of the MONTHLY WEATHER REVIEW.

NOTE.—All observations scheduled between 0300 and 0500, G. C. T. except at Ciudad Victoria, Mazatlan, and Merida, where they are taken near 0200 G. C. T. "Number of observations" refers to those of dynamic height only. (In a few cases temperature or humidity data may be missing for one or more standard pressure surfaces of some observations.) Relative humidity data are not published for standard pressure surfaces having a corresponding mean temperature below −20° C.

All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the values occurring below the operating range of the humidity element. For explanation of the adjustment see article entitled "Curve Method for Obtaining Monthly Means of Relative Humidity," p. 241, MONTHLY WEATHER REVIEW, December 1944.

None of the means included in these tables are based on less than 15 observations at the surface or 5 observations at a standard pressure level.

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 2200 G. C. T. during March 1948. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			Denver, Colo. (1,618 m.)			El Paso, Tex. (1,198 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	30	246	1.4	31	244	2.3	27	229	1.8	30	247	2.0	30	320	1.0	31	305	0.6	31	106	2.6	24	214	0.9	23	205	1.7	26	186	1.8	30	233	2.6	30	15	0.6	31	266	5.0
500							27	226	2.6										31	129	3.1	24	211	1.6	23	220	3.7	26	211	3.2	30	228	3.9						
1,000	29	230	2.2				27	219	3.6				30	281	2.6	31	289	.8	16	154	2.5	21	227	4.4	23	253	5.2	24	223	6.1	26	229	6.1						
1,500	28	230	5.7				26	239	5.3	30	251	4.0	25	276	3.3	31	273	2.5	13	217	3.5	15	254	7.9	21	272	7.6	22	233	7.3	25	237	9.5				31	267	7.1
2,000	26	237	8.7	31	254	4.3	26	258	7.8	29	273	4.9	22	267	6.2	30	274	4.5	10	258	5.2	14	261	8.9	20	276	9.7	21	254	8.2	21	249	10.4	30	303	.5	31	262	8.0
2,500	24	239	11.8	31	260	5.8	23	259	10.4	28	275	5.8	19	270	8.1	27	284	5.1	10	270	6.7	12	267	11.2	17	284	13.8	17	262	8.1	18	264	12.0	28	263	2.5	27	264	9.4
3,000	23	244	14.9	28	264	8.2	22	259	12.5	25	276	6.5	19	278	9.8	24	302	4.8				12	276	13.5	17	288	17.4	17	260	9.2	17	265	14.5	28	272	4.3	27	261	12.4
4,000	20	251	20.0	24	264	11.1	15	266	14.3	21	274	8.1	19	283	12.4	21	286	6.6							17	287	21.2	15	267	12.8	13	272	15.2	25	280	7.6	24	263	17.7
5,000	21	250	24.4	20	272	14.7	13	280	17.8	19	277	10.3	19	281	12.8	19	280	7.2							13	290	23.4	13	273	13.7				23	286	10.5	23	258	22.4
6,000	17	246	26.0	19	265	19.5	12	271	22.6	15	267	11.7	15	281	16.1	16	285	8.5										13	284	17.3				21	277	14.2	18	259	25.9
8,000				16	270	22.3																												15	275	14.3	13	264	31.3
10,000				12	266	29.0																												10	274	18.6			

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (575 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
Surface	29	274	0.3	31	249	2.4	26	207	2.1	27	270	2.8	26	125	1.6	29	240	1.3	31	250	1.0	29	205	1.0	28	322	1.6	31	149	5.8	25	177	2.0	31	207	2.5	28	209	1.5
500							26	216	3.1				26	195	3.4	29	255	1.6				29	220	2.7	28	326	1.6	31	152	5.8	25	188	1.8	31	198	5.3	28	230	4.6
1,000							26	228	4.1	27	269	4.1	23	208	4.0	22	206	2.6	31	243	1.6	25	225	4.5	28	170	.8	31	172	4.5	19	200	.8	29	215	6.2	25	265	5.8
1,500				31	250	2.4	25	252	6.3	24	267	6.6	22	228	5.4	17	236	5.2	31	234	2.8	23	244	7.7	25	203	3.0	27	191	4.3	16	266	3.3	24	233	7.9	24	278	7.3
2,000	29	257	.8	31	244	2.7	25	259	10.0	21	272	8.1	20	237	6.6	13	244	7.0	31	241	4.5	19	247	9.5	22	220	3.3	25	217	4.2	15	262	7.9	22	244	9.6	20	284	9.4
2,500	29	269	2.5	30	237	2.1	24	267	12.2	20	269	8.6	18	246	7.7	12	258	8.7	31	258	4.1	16	263	11.7	20	221	3.9	19	234	4.4	14	267	10.1	19	249	10.8	18	290	11.8
3,000	27	282	3.3	28	240	3.9	22	274	14.2	19	269	8.6	17	241	8.0	12	268	11.6	29	276	5.7	16	266	12.8	14	245	4.9	17	238	5.8	14	262	11.0	18	256	13.3	16	286	13.5
4,000	19	290	5.5	21	282	5.8	18	274	18.0	17	271	10.9	15	270	9.9				26	293	9.0	14	266	15.4				12	257	8.7	11	271	15.7	13	263	13.4			
5,000	16	295	7.1	17	290	7.4	15	276	22.0	13	280	10.5	11	278	10.7				25	293	12.5	11	263	19.3				10	261	9.1				11	263	15.5			
6,000	15	303	9.6	17	296	9.5	10	289	23.3	10	296	10.2	10	285	15.0				24	299	18.1																		
8,000	11	328	17.8	15	286	13.4													11	301	21.0																		
10,000				10	293	14.8																																	

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 2200 G. C. T. during March 1948. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			St. Cloud Minn. (318 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	29	251	4.4	28	258	1.9	29	30	0.6	31	237	1.3	31	357	2.9	28	259	1.4	28	224	0.3
500	29	261	3.1	28	243	2.1	29	206	.8	31	238	2.3				28	237	2.0	28	246	.6
1,000	26	313	3.1	28	224	3.3	28	221	2.4	31	237	3.3	31	355	3.0	25	231	4.3	28	240	2.9
1,500	24	314	3.1	22	238	6.5	25	234	4.8	31	236	4.2	31	320	2.5	21	243	7.3	24	252	4.9
2,000	23	322	4.7	19	243	8.8	23	231	7.8	30	248	4.7	23	277	3.9	21	253	9.2	22	262	7.5
2,500	22	324	6.7	16	247	12.6	22	244	8.8	30	262	5.0	20	279	5.3	18	258	10.1	21	268	8.8
3,000	18	339	9.2	15	255	16.1	22	249	9.5	29	263	7.1	19	282	6.8	14	258	10.7	19	282	11.1
4,000	17	338	10.9	14	256	16.9	18	255	11.3	25	269	12.2	17	287	9.7	12	271	10.9	18	294	13.7
5,000	16	326	13.0	12	262	20.4	13	277	11.2	21	273	19.5	14	293	10.5				14	289	12.7
6,000	16	324	15.7	11	264	24.6	10	299	11.0	17	279	21.8	14	298	12.1				14	278	15.4
8,000																					

Altitude (meters) m. s. l.	San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (225 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			Washington D. C. (24 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	30	90	0.6	31	261	3.9	24	306	1.4	29	227	2.8	30	229	2.2	28	219	2.7
500	30	104	.5	31	245	3.6	24	253	.8	29	222	3.8				28	229	4.8
1,000	29	191	.6	29	234	2.1	24	260	2.8	27	208	3.5	30	231	3.6	28	238	6.6
1,500	25	270	2.2	26	230	1.5	22	271	5.3	22	203	4.0	30	228	4.7	25	244	7.7
2,000	22	261	4.6	23	283	2.7	20	288	6.5	19	201	5.6	29	239	5.2	22	257	10.1
2,500	19	266	7.9	22	277	5.6	16	287	9.4	18	212	6.0	22	254	4.8	20	270	13.8
3,000	19	263	10.8	21	284	8.1	15	287	11.4	14	214	6.5	20	249	5.0	19	275	17.2
4,000	17	252	16.4	20	282	10.8	14	286	15.3	11	224	7.4	13	282	5.8	18	274	19.6
5,000	16	251	21.4	18	288	13.4	14	287	17.9				10	297	8.0	13	285	23.1
6,000	10	250	22.2	16	286	13.8										10	280	23.4
8,000				10	270	15.4												

TABLE 3.—*Free-air resultant winds based on rawin observations made near 0300 G. C. T., during March 1948. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Speeds in meters per second*

Altitude (meters) m. s. l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Caribou, Maine (191 m.)			Charleston, S. C. (13 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	31	310	1.3	31	175	0.7	31	44	1.5	31	123	2.0	30	284	2.3	31	128	1.2
500										31	137	4.4	30	292	5.0	31	184	4.1
1,000				31	221	2.7	31	312	1.3	31	143	3.9	29	300	6.5	30	227	3.4
1,500				31	238	5.8	31	290	3.0	31	153	2.6	29	296	7.4	30	243	5.3
2,000	31	275	5.6	31	245	8.4	31	288	4.0	30	205	2.7	28	300	8.9	28	250	6.2
2,500	31	263	7.8	28	250	10.5	31	284	6.0	30	229	5.6	28	290	10.7	28	261	8.5
3,000	31	264	9.2	27	255	12.9	31	287	7.5	30	239	8.0	27	287	13.0	28	262	10.9
4,000	31	261	11.9	26	252	17.6	31	278	9.9	31	250	13.2	26	279	18.5	27	264	14.6
5,000	30	262	16.4	24	257	23.0	31	270	11.3	31	256	16.1	24	279	20.7	25	272	17.8
6,000	30	263	18.9	22	259	23.9	30	268	13.3	31	254	18.7	23	280	24.1	23	269	20.5
8,000	24	276	21.9	15	256	30.2	28	263	16.1	30	252	25.5	20	278	28.8	18	270	25.6
10,000	18	268	26.6	6	269	36.7	17	258	17.1	22	251	29.7	8	275	34.4	12	285	31.2
12,000	8	261	27.2				12	264	17.2	15	252	26.7				5	285	37.7
14,000							7	261	18.1									

Altitude (meters) m. s. l.	Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N. C. (275 m.)			Hatteras, N. C. (3 m.)			International Falls, Minn. (360 m.)			Little Rock, Ark. (80 m.)			Miami, Fla. (12 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	31	78	0.8	31	322	1.3	29	206	0.7	28	66	0.3	31	12	0.5	31	57	0.2	31	105	2.4
500	30	176	1.8				28	227	2.1	25	250	2.2	31	248	.2	31	254	.9	31	126	3.9
1,000	30	214	4.3				28	242	5.9	24	274	2.9	31	258	2.3	30	216	7.2	31	132	2.7
1,500	30	227	7.0	31	320	1.2	26	247	8.1	24	277	6.1	31	269	4.2	30	220	9.7	31	165	2.3
2,000	31	236	8.8	31	265	2.2	26	255	9.1	24	273	7.5	31	275	6.2	30	231	10.5	31	212	2.6
2,500	31	245	10.5	31	239	3.0	23	264	10.5	23	280	9.1	31	273	9.1	28	244	11.0	31	228	3.7
3,000	31	248	12.3	31	238	3.9	21	268	11.8	27	270	11.1	30	278	11.2	27	237	12.9	31	242	4.6
4,000	30	251	15.0	31	261	6.0	19	271	15.3	27	270	15.4	27	284	13.9	27	240	17.9	31	256	6.6
5,000	30	252	17.8	31	266	8.6	18	263	20.9	26	273	17.6	26	287	16.6	25	249	21.1	31	263	9.8
6,000	28	253	19.3	31	261	10.2	17	267	22.8	23	276	21.9	24	279	17.5	21	240	23.1	31	264	12.2
8,000	23	248	26.9	25	271	12.3	10	277	22.9	11	288	24.2	21	271	21.9	16	246	24.0	27	272	15.9
10,000	19	249	33.2	23	277	18.2	7	277	28.8	5	282	34.7	9	250	18.8	9	249	29.0	23	280	19.9
12,000	6	261	20.8	16	280	19.1													20	279	22.2
14,000	6	273	19.3	10	264	16.7													11	284	23.2

Altitude (meters) m. s. l.	Nantucket, Mass. (14 m.)			Nashville, Tenn. (177 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (31 m.)			Oklahoma City, Okla. (391 m.)			Rapid City, S. Dak. (980 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	28	147	1.0	31	157	0.4	29	137	1.3	31	268	2.9	30	90	0.5	30	339	0.4
500	27	271	5.3	31	180	3.3	29	164	4.5	31	270	3.8	29	126	.4			
1,000	27	279	6.5	29	212	5.7	28	192	5.6	31	275	3.4	29	208	2.6	30	341	.3
1,500	25	289	7.4	29	233	7.3	28	211	7.1	31	288	3.1	26	252	5.0	30	278	2.7
2,000	26	286	9.8	28	247	9.4	28	226	8.0	31	297	4.2	25	251	8.0	30	286	5.1
2,500	26	283	12.1	27	254	11.1	28	236	9.3	31	295	6.5	25	250	11.0	29	298	5.4
3,000	25	280	14.3	27	256	13.7	26	234	12.1	31	300	8.0	26	254	13.3	29	290	7.1
4,000	25	279	18.6	23	261	17.0	26	242	17.1	31	308	10.7	26	253	16.2	27	280	7.2
5,000	25	281	21.2	21	267	21.9	25	246	20.4	30	300	13.6	26	252	19.0	27	272	8.9
6,000	24	282	25.1	14	275	22.2	22	250	22.4	31	298	15.2	19	252	23.7	26	273	10.1
8,000	19	284	29.3	8	280	25.2	16	254	27.2	30	296	15.3	11	254	26.5	25	269	12.2
10,000	6	283	32.0				13	269	32.9	16	289	16.2	5	260	32.9	22	263	13.2
12,000							9	265	34.0	9	279	20.8				21	253	15.9
14,000																5	272	15.1
16,000																		

Altitude (meters) m. s. l.	Saint Cloud, Minn. (318 m.)			San Antonio, Tex. (242 m.)			San Juan, P. R. (28 m.)			Santa Maria, Calif. (72 m.)			Sault Ste. Marie, Mich. (224 m.)			Spokane, Wash. (721 m.)			Tatoosh Island, Wash. (33 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	31	357	0.4	31	92	2.5	30	89	4.5	31	267	3.2	31	45	0.5	31	214	1.6	31	191	1.7
500	31	22	.4	31	102	3.4	30	91	8.9	31	315	3.5	31	20	.9				30	219	3.2
1,000	31	267	.9	31	134	3.9	30	90	8.4	31	324	3.0	31	266	2.8	31	224	2.9	30	227	4.3
1,500	30	264	3.4	31	199	4.3	30	88	7.2	31	333	3.6	31	275	5.9	30	247	3.6	30	233	4.8
2,000	30	266	5.4	30	240	6.9	28	78	6.9	31	323	5.2	31	282	7.9	30	256	4.4	30	248	5.8
2,500	29	277	7.2	30	254	9.5	28	76	6.9	31	314	8.0	31	279	9.9	30	268	5.1	31	254	7.0
3,000	29	281	8.8	30	254	11.7	27	76	7.2	31	309	10.1	30	278	11.7	29	270	6.0	31	261	8.2
4,000	28	276	10.4	30	256	15.7	27	57	7.7	31	305	12.6	30	282	16.4	29	276	8.2	31	273	9.3
5,000	27	266	14.1	30	254	19.4	27	46	8.1	29	292	13.6	30	280	19.7	29	278	10.7	31	277	8.9
6,000	27	267	16.5	28	250	22.4	27	19	6.8	28	291	14.9	27	279	21.0	28	272	12.0	31	273	10.1
8,000	23	260	21.0	18	254	26.2	26	348	8.9	22	301	19.6	20	282	27.2	23	279	14.6	30	273	13.6
10,000	17	266	22.6	7	256	42.2	24	324	13.5	15	306	20.6				18	276	17.6	19	284	14.6
12,000	9	268	18.5				22	297	20.7	8	308	22.8				11	286	15.1	16	296	14.1
14,000	6	258	19.8				16	299	18.0										13	298	16.4
16,000																			5	328	8.8

RIVER STAGES AND FLOODS FOR MARCH 1948

ELMER R. NELSON

The river stages during March were above normal in the eastern half of the country except at a few scattered points. In the western half, stages were below normal in California, Colorado, Oklahoma, Texas, Nevada, and southern Arizona.

Spring floods prevailed over a broad region extending from the eastern Great Plains to the Atlantic Coast, being most severe in southern Michigan where record or near-record-breaking stages were observed. No major floods occurred on any of the large rivers. Floods in the Upper Susquehanna River Basin on March 23 and 24 were of near-record magnitudes. At Towanda, Pa., the Susquehanna River came within 2 feet of the stage of March 19, 1936—the peak of record—flooding the lower sections of the town and causing considerable property damage. In the Southern States, moderate to locally severe floods occurred from Louisiana to the Atlantic Coast.

St. Lawrence drainage.—Moderate to heavy floods occurred in the Lake Michigan and Lake Huron drainage areas during the latter half of the month. The rivers that were in flood on the 29th of February receded slowly until March 14. This recession was caused by the return of moderately cold weather that lasted through the first half of March. Six to ten inches of new snow fell over southern Michigan during the first 3 days of the month. The streams rose rapidly on the 15th from moderate warm rains that fell on the snow-covered, frozen ground. General heavy rains, ranging from 2 to 3 inches, overspread the southern half of Lower Michigan on the 19th and continued to the 22d. This rainfall, in addition to the run-off from the snow mantle, set the stage for the major flood that occurred in the Saginaw and Grand River Basins from the 19th to the 27th. The Pine River at Alma, Mich., rose rapidly, and, aided by heavy ice jams, reached an all-time high of 12.6 feet by midnight, 0.5 foot above the previous record on March 1919. The Tittabawassee at Midland, Mich., reached a crest of 23.2 feet on the 21st, within 2 inches of the previous record of March 1928. The Shiawassee at Owosso, Mich., crested over 3 feet above flood level and equalled the previous record set in April 1947. The Cass River at Vassar, Mich., crested nearly 2 feet higher than the previous high of March 1942. The Saginaw River at Saginaw, Mich., crested at 22.4 feet, the highest since April 1929. The crest stages in the lower Grand River were the highest in 42 years. Excessive property damage resulted from this flood, principally to railroads, highways, bridges, buildings, and levees.

A series of spring freshets occurred in the Lake Erie drainage area from March 20 to the 25th, causing only flooding of lowlands and some low, riverside highways.

Atlantic Slope drainage.—Considerable flooding occurred along the Atlantic Slope during March, from New Hampshire to Georgia. The spring run-off from snow-melt began on March 21, in the Merrimack River Basin in New Hampshire as a result of the high temperatures during the preceding week and moderate amounts of precipitation on the 20th. Stages at most stations were affected by ice jams. Overflows from this condition, however, were minor and of short duration. No damage was reported. An average of 7 inches of snow remained in the mountain section of the Merrimack drainage area on the 31st of March, with a water content of 2.2 inches.

Light to locally heavy flooding occurred in the Connecticut River Basin between the 20th and 31st, from moderate rains on the 19th and 20th and unseasonably mild temperatures beginning in mid-March, which caused rapid melting of the accumulated snow cover within a relatively short period. No extensive damage occurred. A few highways were inundated for a short period in Massachusetts and Connecticut. The worst flooding occurred in the Hartford area, where some dwellings were surrounded with water nearly up to the level of the first floor. The crest stage of 24.5 feet at Hartford was the highest stage at that point since the hurricane flood of September 1938. Based on flood frequencies during the past 100 years, such a stage may be expected about every 8 or 10 years. The system of dikes around Holyoke, Mass., Springfield, Mass., and Hartford, Conn., prevent any extensive damage to those cities.

Minor flooding occurred on the Hudson River at Albany, N. Y., on the 23d. This freshet was due to snow-melt, rain, and release of water from behind ice gorges. No damage resulted.

Two significant rises occurred in the Susquehanna River Basin during the month, the first during the period of March 16–19. There were from 3 to 6 inches of water in the snow cover over the North Branch of the Susquehanna River Basin above Towanda, Pa., on the 15th. Unseasonably warm weather on March 15–16, combined with 0.4 inch of rain, caused considerable run-off from melting and light flooding at Towanda. The second and more important rise occurred between the 20th and 24th. The moderate flooding that resulted was due to heavy run-off from snow melt, caused by a prolonged period of warm weather from the 18th to the 21st combined with ½ inch of rain on the 19th. The crest at Towanda, Pa., was within 2 feet of the maximum stage of 25.03, recorded at that point on March 19, 1936.

Minor floods occurred in the Cape Fear, Neuse, Tar, and Roanoke Rivers in eastern North Carolina during March. On the 7th, rains averaged 1 inch over all the watersheds and nearly 1½ inches over the headwaters of the Neuse and Roanoke Rivers. Light overflows resulted from these rains and additional heavy rain on the 10th over the lower reaches of the Roanoke and Neuse Rivers. The principal losses from the minor overflows were to logging interests that were forced to suspend operations during the high water.

Moderately heavy rains from the 6th to 8th caused minor flooding in the streams in South Carolina. The rainfall over the Pee Dee and Edisto watersheds averaged between 1.5 and 2 inches on March 7. The Pee Dee rose 17 feet during the night at Cheraw, S. C. Heavy rains occurred again on the 17th. No property damage was reported from the overflows.

Heavy rains of from 1–2 inches occurred over a large area in Georgia on the 4th, 6th, 9th, 17th, and 23d. It was the eighth consecutive month with above-normal precipitation. The effect of the March rainfall was to produce three chief periods of rising stages, although there was practically a steady inflow to each river due to the great frequency of rainfall. Flood stages were exceeded in the Ocmulgee, Oconee, Altamaha, Ogeechee, and Savannah Rivers.

East Gulf of Mexico drainage.—Light to severe flooding occurred from Georgia and Florida to Mississippi during March. In Georgia, the lower Flint River reached stages above flood during the period of the 10th to 15th; the Apalachicola River was above flood stage throughout the month except in the upper portion. The high water in the Apalachicola River was favorable for logging interests as far as the floating of logs downstream was concerned. Agricultural fields near some rivers were inundated, and water rose into some residential areas in the lower Flint River section, creating more nuisance than real damage.

Moderate flooding occurred in the Conecuh and Choctawhatchee Rivers in Florida as a result of heavy to excessive rains from the 1st to the 6th. Rainfall during this period averaged 6.9 inches. Damage was mainly to highways and bridges.

Heavy rains, averaging around 4 inches from March 2–6, over the Warrior, Tombigbee, and Alabama Rivers in Alabama caused light flooding. Rains averaging 3.75 inches, north of Aberdeen, Miss., on the 16th and 17th, caused the Upper Tombigbee River to rise again, resulting in stages 9 to 24 feet above flood level below Gainesville, Ala.

Light to heavy rain during the first 6 days of March, averaging nearly 3 inches, caused moderate to locally severe flooding along the Pearl, Leaf, Chickasawhay, and Pascagoula Rivers in Mississippi during March. The Tombigbee, from Lock No. 3 to Lock No. 1, crested at stages 5 to 8 feet below the maximum stages of record.

Upper Mississippi Basin.—Light to moderate flooding occurred in several of the streams in the upper Mississippi Basin in Minnesota, Iowa, Illinois, and Missouri during March. Most of the ice had broken up in the main channel of the Mississippi River by March 20, permitting navigation by March 28. Flood stages were reached in the Zumbro and Whitewater Rivers in Minnesota from the 18th to the 22d, caused mainly by ice gorges at the mouths of those rivers. The high water that resulted in the several streams during the latter half of the month was due in part to rapid snow melt caused by a prolonged period of mild weather from the 13th to 25th. Heavy rains also occurred on the 16th, 19th, and 26th.

Missouri Basin.—Light to moderate flooding occurred along the Missouri River and several of its tributaries during the last half of March. Light overflows occurred during the first few days of the month along a few of the tributaries.

The Platte River at Ashland, Nebr., went nearly 1 foot above flood stage on the 1st as a result of an ice gorge. Several local overflows occurred along the Platte between Freemont and Ashland, Nebr., as a result of ice gorges with some damage to highways. Several hundred acres near the confluence of the Elkhorn and the Platte were inundated as a result of a break in a dike. This was aggravated by the rapid run-off of water from the melting of the heavy snow cover.

Moderate overflows occurred along the Big and Little Blue Rivers in Nebraska during the closing days of February and the 1st of March. Another overflow occurred later in the month that was moderate along the Little Blue, but rather severe along the Big Blue. Much land along the rivers was flooded, but crop losses were small, as the corn crop had not yet been planted. Most of the damage from these two overflows occurred to buildings and highways in Gage County, Nebr.

No losses were reported from the overflow along the Republican River in Nebraska. Twenty-thousand acres of farm land was flooded in Clay County, but the overflow was of too short duration to cause material damage.

Light overflows along the Big Sioux and Floyd Rivers in Iowa caused the closing of a few county roads.

The first high water along the Heart River in western North Dakota occurred on the 16th, about 60 miles west of Mandan. The crest reached Mandan on the morning of the 20th and flooded an area for 20 miles upstream. This flooding was caused by the run-off from melting snow in the western reaches of the river and breaking up of the ice. The ice was several feet thick at the mouth of the Heart River and 33.5 inches thick on the Missouri at Bismarck, N. Dak. The water remained high in the Mandan area until the 23d, when another volume of water and ice pouring in caused serious flooding. A highway bridge was washed out and many people were evacuated. Considerable water came down the Heart River, but the serious damage resulted from ice holding back the water and breaks in the dike.

Light flooding occurred along the Missouri River from Mobridge, S. Dak., to St. Charles, Mo., from the 19th to the 29th. This flooding was caused by run-off from melting snow and moderate to locally heavy rain on the 18th and 19th. Damage along the Missouri was negligible. Some 4,600 acres of land were inundated from Nebraska City to Lexington, Mo., but damage was small, as no ground had been prepared for spring crops.

Ohio Basin.—Some flooding occurred in seven States along the Ohio River and its tributaries during the last half of March. Several rises occurred in the streams in western Pennsylvania from the 17th to the 25th. The most important rise occurred during the last 4 days of that period, after a heavy rain that ranged from 1.25 inches at Salamanca, N. Y., to 3.12 inches at Meadville, Pa., in the upper Allegheny Basin for the 24 hours ending at 7 a. m. on the 22d. Rainfall over the Monongahela Basin for that period was light and averaged about 0.1 inch. Precipitation occurred again on the 23d. This time the heavy rains were over the Monongahela Basin, with 24-hour amounts ranging from 2.32 inches at Tygart Dam, W. Va., to 1.20 inches at Rowlesburg, W. Va. Both the Allegheny and Monogahela Rivers rose rapidly, and although the bulk of the flow from the Allegheny was through Pittsburgh by the time the Monongahela crested, the Pittsburgh stage rose to within about 2 feet of flood stage on the 25th. Flood stages were exceeded practically the entire length of the Allegheny River, while flood stage was exceeded only slightly on the Monongahela River at Lock No. 3., Elizabeth, Pa.

The storm of March 23 and 24 caused heavy rain over the Tygart drainage basin and the Middle Fork in W. Va., which resulted in a rapid rise of those two streams to above flood stage. Some basements were flooded at Philippi, Elkins, and Belington, W. Va., due to the backing up of water in storm sewers. Some damage occurred to bridges, culverts, and roadbeds in Randolph County.

Frequent and heavy precipitation caused some flooding in the Hocking, Scioto, and Miami Rivers in Ohio during the latter part of the month.

Frequent precipitation over the Ohio River watershed during the beginning and middle of March resulted in a strong stream flow and rather high stages along the Ohio during the first 2 weeks of the month. Several stations along the lower Ohio were above flood stage during the first decade. Overflows occurred again along the Ohio towards the end of the month as a result of the general heavy rain that occurred on the 26th and 27th. The rain during this period averaged around 1.75 inches. Several of the tributaries in Indiana went above flood stage as a result of this heavy rain. The only flooding in Illinois and Kentucky occurred along the Ohio River. In western North Carolina light flooding occurred in the French Broad on the 28th.

Very little damage occurred in the Ohio River Basin as a result of the overflows except the retarding of spring field work. Damages from these floods would have been considerable had they occurred during the growing season.

White, Arkansas, and Red Basins.—Minor flooding occurred in the White River Basin during March. The initial rise of most of these floods began in February.

The highest floods occurred in the Ouachita Basin, but very little damage occurred. Thousands of acres of tillable land were covered along the Ouachita from Camden, Ark., to Huttig, Ark., but this land is not ordinarily planted until late spring, due to the high probability of spring floods. Flood stages were exceeded on the White River by 1 to 2 feet, from Augusta, Ark., to the mouth, but damage was extremely light because of the major levee system along the lower White River.

Minor flooding occurred in the Arkansas Basin on the Poteau River near Poteau, Okla., and on the Neosho River in the vicinity of Oswego, Kans.

Lower Mississippi Basin.—The Tallahatchie River at Swan Lake and the Yazoo River at Greenwood and Yazoo City, Miss., remained above flood stage throughout the month. Occasional rains during the month were instrumental in holding these rivers nearly stationary.

The Atchafalaya and Ouachita Rivers in Louisiana continued to rise during the first part of March as a result of the heavy rains during the first decade over the southeastern portion of the State. This rise was followed by a period of little change until rises began on the Mississippi and the Atchafalaya toward the close of the month. Flood stages were exceeded at Monroe, La., on the Ouachita, and at Atchafalaya and Morgan City, La., on the Atchafalaya. Large areas of Orleans, Jefferson, Plaquemines, LaFourche, and Terrebonne Parishes in Louisiana were flooded as a result of the excessive rain on the 5th and 6th. In New Orleans, La., 700 persons were evacuated from flooded areas. Two of the three highways entering the city were closed and city traffic was disrupted. At the New Orleans Weather Bureau City Office, 10.93 inches of rain were recorded for a 24-hour period.

West Gulf of Mexico drainage.—Heavy rains occurred over northeast Texas and central Louisiana on March 2, and caused light to moderate flooding on the Sabine River in Texas and light overflow in the Mermentau River Basin. The Sabine rose to 17.4 feet at Mineola, Tex., on the 6th and crested at 32.4 feet at Gladewater, Tex., on the 10th. The Nespique (which flows into the Mermentau) rose to 20.8 feet at Basile, La., on the 8th, and the Mermentau reached 5.6 feet at Mermentau, La., on the 7th. All streams were within their banks by the middle of the month. The greatest damage occurred at Gladewater, Tex., and was confined mostly to machinery and loss of oil.

Moderate flooding occurred on the Trinity River in Texas and two of its tributaries as a result of heavy rains during the last week of February. Heavy run-off occurred from these rains, as the ground was well saturated with moisture as a result of nearly continuous rain from January 16 to February 13. There were only 7 days without rain during that period. Elm Fork River crested at a stage of 6.6 feet above flood level at Carrollton, Tex., which would have caused much damage during the growing season. The Trinity River crested at a stage of 40.5 feet at Dallas, Tex., 12.5 feet above flood stage on the 27th of February.

Pacific Slope drainage.—A moderate rise occurred in the Sacramento River Basin in California from March 23–26 but no flood stages were reached. This rise resulted from heavy rain that accompanied the slowly southward-moving east-west front on the 22d that brought excessive rains as far south as Red Bluff, Calif. Heavy run-off was concentrated above Shasta Dam and in the east side creeks as far south as Oroville. The upper Sacramento River rose sharply on the 23d to a crest at Red Bluff of 18.7 feet. The only damage that occurred was on the lower reaches of some creeks on the east side of the Sacramento River in Butte County: namely, the Pine, Rock, Mud, and Cherokee Creeks. Several thousand acres of grain and pasture lands were flooded by overflow from these creeks. Some damage resulted from injury to growing grain crops.

A minor freshet occurred March 22–23, in a few tributaries of the Willamette River in Oregon.

FLOOD STAGE REPORT FOR MARCH 1948

[All dates in March unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Michigan					
Red Cedar:	*Feet*			*Feet*	
Williamston, Mich	7	16	16	7.0	16
		19	22	10.7	20
East Lansing, Mich	8	Feb. 29	1	9.3	Feb. 29
		20	23	11.3	20
Grand:					
Eaton Rapids, Mich	6	20	22	6.5	20–21
Lansing, Mich	11	Feb. 29	Feb. 29	11.0	Feb. 29
		20	23	14.7	21
Portland, Mich	12	3	3	12.0	3
Ionia, Mich	21	20	24	24.3	21
Lowell, Mich	15	20	25	19.0	22
Grand Rapids, Mich	15	20	25	18.4	23
Lake Huron					
Flint:					
Columbiaville, Mich	10	Feb. 20	11	14.9	2
		14	14	10.3	14
		16	(2)	17.0	21
Flint, Mich	11	20	23	14.0	20
Cass: Vassar, Mich	14	20	21	20.8	20
Shiawassee: Owosso, Mich	7	Feb. 29	Feb. 29	7.1	Feb. 29
		20	23	10.3	20
Chippewa: Mt. Pleasant, Mich	13	20	20	13.3	20
Pine: Alma, Mich	9	19	23	12.6	19
Tittabawassee: Midland, Mich	18	20	23	23.2	21
Saginaw: Saginaw, Mich	19	21	27	22.4	22–23
Lake Erie					
St. Marys: Decatur, Ind	13	Feb. 17	Feb. 29	15.3	Feb. 19
		22	25	18.5	23
		27	29	13.5	28
St. Joseph: Montpelier, Ohio	10	1	3	12.5	1
		20	25	12.8	23
		27	30	11.1	28
Maumee:					
Fort Wayne, Ind	15	1	1	15.6	1
		22	25	17.3	22, 23
		27	28	15.8	27
Defiance, Ohio	10	23	24	11.3	23
Napoleon, Ohio	10	23	24	11.3	23
ATLANTIC SLOPE DRAINAGE					
Pemigewassett: Plymouth, N. H	11	22	23	11.9	23
Contoocook: Penacook, N. H	7	23	23	7.2	23
Suncook: Chichester, N. H	10	23	23	12.5	23
Merrimack:					
Concord, N. H	12	24	24	12.2	24
Bow, N. H	5.5	24	24	5.5	24
Connecticut:					
White River Junction, Vt	18	20	20	18.7	20
Walpole, N. H	30	22	23	33.7	22
Montague City, Mass	28	22	24	35.9	23
Holyoke, Mass	9	22	24	11.4	23
Hartford, Conn	16	21	(2)	24.5	24
				19.2	29
Hudson: Albany, N. Y	11	23	23	11.2	23
Unadilla: Rockdale, N. Y	11	21	22	11.9	21
Tioughnioga: Whitney Point, N. Y	12	17	17	13.1	17
		19	30	14.9	22
Chenango:					
Sherburne, N. Y	8	17	25	9.6	22
Greene, N. Y	8	17	25	14.6	22
Binghamton, N. Y	16	17	25	24.0	22
Chemung:					
Corning, N. Y	16	22	22	17.0	22
Chemung, N. Y	12	17	17	15.0	17
		20	23	18.3	22
Elmira, N. Y	12	17	17	12.1	17
		22	22	15.2	22
Susquehanna:					
Oneonta, N. Y	12	17	31	18.3	22
Unadilla, N. Y	11	17	17	11.0	17
		20	23	13.2	22
Bainbridge, N. Y	13	17	24	20.5	22
Conklin, N. Y	11	16	25	20.8	22
Binghamton, N. Y	14	21	24	20.1	22
Vestal, N. Y	14	17	25	19.0	18
				27.7	22
Towanda, Pa	16	20	24	17.6	21
				23.0	23
Wilkes-Barre, Pa	22	21	25	28.75	23
Danville, Pa	20	23	25	22.7	24

See footnote at end of table.

FLOOD STAGE REPORT FOR MARCH 1948—Continued

River and station	Flood stage	Above flood stages—dates: From—	Above flood stages—dates: To—	Crest [1]: Stage	Crest [1]: Date
ATLANTIC SLOPE DRAINAGE—con.					
Roanoke:	*Feet*			*Feet*	
Alta Vista, Va	10	24	25	10.5	25
Williamston, N. C	10	Feb. 10	(2)	11.1	15
				10.6	30-31
Tar:					
Rocky Mount, N. C	8	10	10	8.5	10
Tarboro, N. C	18	Feb. 15	Feb. 23	25.3	Feb. 19
		12	14	18.6	13
Greenville, N. C	13	12	15	13.6	14
Neuse:					
Neuse, N. C	14	9	11	15.4	10
Smithfield, N. C	13	8	14	16.6	11
Goldsboro, N. C	14	10	19	17.7	15
Kinston, N. C	14	Feb. 8	2	20.8	Feb. 22
		10	21	16.1	17-18
Cape Fear: Lock No. 2, Elizabethtown, N. C	20	9	13	26.9	10
Lynches: Effingham, S. C	14	14	14	14.4	14
Waccamaw: Conway, S. C	7	Feb. 11	3	8.5	24, 25
Pee Dee					
Cheraw, S. C	30	8	9	32.8	9
Pee Dee, S. C	19	9	23	22.3	14
		31	2	19.0	31
Saluda:					
		7	8	6.5	7
Pelzer, S. C	6	24	24	6.5	24
		28	29	6.5	28
Chappells, S. C	13	17	17	15.2	17
Broad: Blairs, S. C	14	7	9	17.6	8
Catawba: Catawba, S. C	11	8	8	11.0	8
Wateree: Camden, S. C	23	8	9	23.5	8
Edisto:					
		8	16	8.9	12
Orangeburg, S. C	8	17	27	8.6	18
		29	30	8.2	29-30
Givhans Ferry, S. C	10	1	(2)	13.8	21
		8	10	23.5	9
Savannah: Butler Creek, Ga	21	18	18	21.0	18
		25	25	21.2	25
Ogeechee:					
Midville, Ga	6	11	13	6.6	12
		21	22	6.1	22
				9.4	14-15
Dover, Ga	7	Jan. 21	(2)	9.0	21
				8.7	25
Ocmulgee:					
Macon, Ga	18	8	8	18.0	8
		25	26	18.2	25
				14.2	14
Abbeville, Ga	11	9	(2)	12.7	24
				12.9	31
Oconee:					
		7	10	21.4	8
Milledgeville, Ga	20	18	18	20.7	18
		24	25	20.4	24
		12	20	17.6	15
Mt. Vernon, Ga	16	23	25	16.6	24
		31	(2)	16.4	31
Altamaha:					
Charlotte, Ga	12	Jan. 25	(2)	20.7	Feb. 21
				20.1	18, 19
Piney Bluff, Ga	17	Feb. 12	4	21.0	Feb. 21
		10	(2)	20.7	18, 19
EAST GULF OF MEXICO DRAINAGE					
Flint:					
Albany, Ga	20	10	16	25.0	13
Bainbridge, Ga	25	10	18	28.9	15
Apalachicola:					
Chattahoochee, Fla	20	9	16	22.1	12
				21.0	Feb. 15, 16
Blountstown, Fla	15	Jan. 25	(2)	22.1	12
				20.7	28
Choctawhatchee:					
Newton, Ala	19	7	8	20.8	7
Geneva, Ala	23	8	13	26.6	9
Caryville, Fla	12	6	20	14.5	10
Conecuh:					
River Falls, Ala	35	7	7	36.4	7
Brewton, Ala	17	9	13	18.0	11
Coosa:					
Mayos Bar Lock, Ga	28	Feb. 10	Feb. 11	28.9	Feb. 11
		Feb. 13	Feb. 18	31.7	Feb. 15
Lock No. 4, Lincoln, Ala	17	Feb. 10	Feb. 20	19.7	Feb. 15
Alabama:					
Montgomery, Ala	35	Feb. 12	Feb. 16	35.8	Feb. 12
Millers Ferry, Ala	40	7	13	43.7	9
Black Warrior: Eutaw, Ala	35	4	14	45.0	10
Tombigbee:					
Aberdeen, Miss	34	7	7	34.0	7
		18	22	38.4	19
				38.2	20
Gainesville, Ala	36	Feb. 10	17	51.0	Feb. 21
				44.9	12
				54.3	1
Lock No. 4, Demopolis, Ala	39	Feb. 9	Apr. 7	56.1	11-12
				47.1	30

FLOOD STAGE REPORT FOR MARCH 1948—Continued

River and station	Flood stage	Above flood stages—dates: From—	Above flood stages—dates: To—	Crest [1]: Stage	Crest [1]: Date
EAST GULF OF MEXICO DRAINAGE—continued.					
Tombigbee—Continued	*Feet*			*Feet*	
				56.9	1
Lock No. 3	33	Jan. 31	(2)	57.4	8
				49.6	25
				60.0	1, 4
Lock No. 2	46	Feb. 10	Apr. 7	59.5	8
				52.0	25
Lock No. 1	31	Feb. 11	(2)	42.7	8
Leaf:					
Hattiesburg, Miss	22.5	6	9	25.0	7
Beaumont, Miss	20	5	14	27.2	9
Okatibbee: Meridian, Miss	15	2	11	22.2	7
Chickasawhay:					
Enterprise, Miss	20	3	9	25.6	7
Shubuta, Miss	30	4	14	37.85	8
Waynesboro, Miss	35	6	12	38.2	9
Pascagoula: Merrill, Miss	22	4	17	25.9	10
Bogue Chitto: Franklinton, La	11	3	8	15.0	6
Pearl:					
Edinburg, Miss	20	5	13	23.3	8
Jackson, Miss	18	Feb. 8	22	30.6	11
Goshens Springs (near), Miss	17	3	17	23.1	10
Monticello, Miss	15	Feb. 20	25	21.2	8
Columbia, Miss	17	Feb. 26	24	22.15	7
Pearl River, La	12	Feb. 13	(2)	17.7	7
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Pecatonica: Freeport, Ill	10	Feb. 28	7	16.4	2
		16	24	15.8	20
				12.6	2
Rock: Moline, Ill	10	Feb. 28	12	11.0	9
		16	(2)	14.5	23
Cedar: Waterloo, Iowa	15	Feb. 29	2	15.8	1
Iowa: Wapello, Iowa	10	Feb. 29	2	11.0	1
		18	26	14.6	21
Zumbro: Thielman, Minn	35	Feb. 28	Feb. 29	37.9	29
		19	21	39.6	20
Whitewater: Beaver, Minn	7	17	19	8.0	19
Raccoon: Van Meter, Iowa	13	19	22	19.0	19
Middle:					
Des Moines (SW 18th St.), Iowa	10	19	23	16.0	20
Indianola, Iowa	14	19	21	17.2	19
Des Moines:					
Tracy, Iowa	14	20	24	20.1	22
Eddyville, Iowa	15	19	25	21.3	22
Ottumwa, Iowa	9	17	17	9.5	17
		20	25	14.7	23
Illinois:					
Morris, Ill	13	20	24	20.0	20
		Feb. 28	1	18.9	Feb. 29
Peru, Ill	17	17	17	17.8	17
		19	Apr. 2	23.5	20
Peoria, Ill	18	20	Apr. 6	22.2	24
Havana, Ill	14	19	(2)	19.8	24
Beardstown, Ill	14	20	(2)	21.6	31
Meramec:					
Pacific, Mo	11	24	24	11.3	24
Valley Park, Mo	14	28	29	15.5	28
Mississippi:					
Gordons Ferry, Iowa	13	Feb. 29	3	13.2	1-2
		31	(2)	13.0	31
Muscatine, Iowa	15	20	26	16.6	22
Keithsburg, Ill	12	19	29	14.8	22
Grafton, Ill	18	22	Apr. 6	25.2	27
St. Louis, Mo	30	23	Apr. 1	34.6	27
Chester, Ill	27	24	Apr. 4	32.7	28
Cape Girardeau, Mo	32	23	Apr. 7	37.8	29
Missouri Basin					
Big Sioux: Akron, Iowa	12	1	4	18.5	2
		18	24	16.4	22
Floyd: James, Iowa	14	1	3	16.1	1
		16	20	17.1	17
Platte: Ashland, Nebr	7	1	1	7.7	1
Republican:					
Hardy, Nebr	10	17	17	10.0	17
		18	18	10.3	18
Clay Center, Kans	15	18	20	17.9	19
Wakefield, Kans	11	19	19	11.4	19
Junction City, Kans	10	19	19	10.3	19
Little Blue:					
		17	17	9.1	17
Endicott, Nebr	9	18	22	11.3	20
				11.6	21
Hanover, Kans	14	19	20	15.8	20
Big Blue:					
Beatrice, Nebr	16	1	1	16.0	1
		20	24	22.9	22
Barnston, Nebr	18	19	24	21.9	19
				24.3	22
		1	1	25.7	1
Blue Rapids, Kans	20	19	24	28.8	19
				23.0	23
Randolph, Kans	22	19	20	24.8	20
Kansas: Manhattan, Kans	17	19	21	18.8	20

See footnotes at end of table.

FLOOD STAGE REPORT FOR MARCH 1948—Continued

River and station	Flood stage	Above flood stages—dates From—	T—	Crest [1] Stage	Date
MISSISSIPPI SYSTEM—continued					
Missouri Basin—Continued					
	Feet			*Feet*	
Grand:					
Chillicothe, Mo	18	16	18	23.3	17
		19	22	27.9	20
Brunswick, Mo	12	1	2	13.3	2
		19	27	19.5	23
		30	30	12.0	30
Marais des Cygnes:					
Garnett, Kans	26	19	19	28.15	19
Osawatomie, Kans	28	20	20	28.2	20
La Cygne, Kans	25	20	23	27.9	21
Trading Post, Kans	24	23	24	24.7	24
Missouri:					
Mobridge, S. Dak	16	31	31	17.9	31
Nebraska City, Nebr	15	19	20	15.9	19
St. Joseph, Mo	17	20	21	17.5	20
Lexington, Mo	22	20	23	24.3	21
Waverly, Mo	18	20	24	21.6	22
Boonville, Mo	21	21	25	24.2	24
Jefferson City, Mo	23	22	25	24.6	24
Herman, Mo	21	22	27	23.9	24, 25
St. Charles, Mo	25	22	29	29.8	26
Ohio Basin					
Allegheny:					
Port Allegany, Pa	9	22	23	11.2	22
Olean, N. Y	10	20	25	11.6	20
				16.5	23
Warren, Pa	14	22	24	17.0	22
Franklin, Pa	17	22	24	20.4	22
Parkers Landing, Pa	20	22	23	20.7	23
Lock No. 9, Rimerton, Pa	18	22	23	21.5	23
Lock No. 7, Kittanning, Pa	23	23	23	23.1	23
Lock No. 5, Schenley, Pa	21	23	23	23.7	23
Lock No. 4, Natrona, Pa	19.5	22	23	21.2	23
Lock No. 3, Acmetonia, Pa	20	23	23	20.8	23
Tygart:					
Belington, W. Va	14	24	24	15.2	24
Philippi, W. Va	17	24	24	19.6	24
Middle Fork: Midvale, W. Va	11	24	24	11.4	24
Monongahela: Lock No. 3, Elizabeth, Pa	23	25	25	23.2	25
Hocking:					
Enterprise, Ohio	12	28	28	14.0	28
Athens, Ohio	17	28	28	17.6	28
Scioto:					
La Rue, Ohio	11	24	24	12.2	24
		28	28	11.4	28
Prospect, Ohio	10	25	25	10.2	25
Circleville, Ohio	14	25	25	14.7	25
		28	28	17.0	28
Chillicothe, Ohio	16	29	29	18.3	29
Mad:					
Piketon, Ohio	15	17	17	18.7	17
		27	30	22.2	28
Springfield, Ohio	84	24	24	87.1	24
		27	28	87.8	27
Miami: Middletown, Ohio	15	27	27	15.6	27
West Fork:					
Anderson, Ind	10	20	20	10.6	20
		24	25	14.0	24
		27	28	12.8	28
Noblesville, Ind	14	27	28	14.3	28
Indianapolis, Ind	12	28	28	12.0	28
Spencer, Ind	14	25	(2)	20.0	28-29
Elliston, Ind	18	24	(2)	26.5	30
Edwardsport, Ind	12	1	4	13.9	2
		21	(2)	22.5	31
East Fork:					
Seymour, Ind	14	27	30	17.5	28
Williams, Ind	10	31	(2)	10.3	31
White:					
Petersburg, Ind	16	27	(2)	22.0	31
Hazleton, Ind	16	27	(2)	22.1	31
Wabash:					
Bluffton, Ind	10	22	22	11.0	22
Wabash, Ind	12	Feb. 28	1	15.7	Feb. 28
		1	29	18.6	22
Lafayette, Ind	11	Feb. 29	3	17.0	1
		21	31	18.6	24
				17.7	28
Covington, Ind	16	Feb. 29	4	19.7	2
		22	(2)	21.9	25
Terre Haute, Ind	14	1	5	15.5	4
		22	(2)	21.2	28
Vincennes, Ind	16	27	(2)	23.1	31
Mt. Carmel, Ill	17	28	(2)	22.4	31
New Harmony, Ind	15	30	(2)	16.4	31
French Broad: Asheville, N. C	6	28	28	6.4	28
Tennessee: Kentucky Dam, Ky	31	Feb. 13	13	50.1	Feb. 19, 20, 31
		24	2	38.9	
Ohio:					
Madison, Ind	46	----	----	44.8	29
Dam No. 41, Louisville, Ky.:					
Upper Gage	28	29	31	28.5	30
Lower Gage	55	29	30	55.3	30
Dam No. 44, Leavenworth, Ind	53	28	Apr. 2	56.4	30
Dam No. 45, Addison, Ky	47	29	Apr. 2	49.3	31
Tell City, Ind	38	28	2	42.6	31
Dam No. 46, Owensboro, Ky	41	31	Apr. 2	41.6	Apr. 1

See footnote at end of table.

FLOOD STAGE REPORT FOR MARCH 1948—Continued

River and station	Flood stage	Above flood stages—dates From—	To—	Crest [1] Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Ohio—Continued	*Feet*			*Feet*	
Dam No. 47, Newburgh, Ind	38	3	5	38.6	4
		28	(2)	43.6	31
Dam No. 48, Near Henderson, Ky	38	28	(2)	42.2	31
Mount Vernon, Ind	35	Feb. 18	Feb. 29	41.2	Feb. 23
		4	6	35.2	5
		28	(2)	39.0	Apr. 1
Dam No. 49, Uniontown, Ky	37	Feb. 19	Feb. 29	42.2	Feb. 24
		29	(2)	----	----
Shawneetown, Ill	33	Feb. 17	9	42.4	Feb. 24
				36.2	6
		26	(2)	39.2	31
Dam No. 50, Fords Ferry, Ky	34	Feb. 17	10	45.5	Feb. 25
		24	(2)	----	----
Dam No. 51, Galconda, Ill	40	Feb. 19	Feb. 29	44.1	Feb. 25
		31	(2)	44.0	Apr. 5
Paducah, Ky	39	29	(2)	42.3	Apr. 4
Dam No. 52, Brookport, Ill	37	Feb. 16	12	47.2	Feb. 22
		24	(2)	44.7	Apr. 4
Dam No. 53, Near Mound City, Ill	42	Feb. 16	13	50.4	Feb. 22
				46.1	5-8
		23	(2)	51.6	Apr. 2
Cairo, Ill	40	Feb. 17	13	46.8	Feb. 23
		22	(2)	51.6	Apr. 3
White Basin					
Black: Black Rock, Ark	14	2	4	14.6	3
		28	28	14.0	28
White:					
Augusta, Ark	32	5	9	32.2	7
Georgetown, Ark	21	2	13	22.9	8-9
		Apr. 1	Apr. 4	21.1	Apr. 2-3
Des Arc, Ark	24	4	14	25.1	8-10
Clarendon, Ark	26	Feb. 29	(2)	28.4	8-14
St. Charles, Ark	25	1	(2)	26.9	13-14
Arkansas Basin					
Neosho: Oswego, Kans	17	24	24	17.3	24
Deep Fork: Dewar, Okla	18	26	27	18.3	26
Poteau: Poteau, Okla	21	Feb. 27	5	28.5	Feb. 28
				26.6	3
		7	7	22.2	7
Petit Jean: Danville, Ark	20	Feb. 25	12	22.95	Feb. 27
Red Basin					
Little Missouri: Boughton, Ark	20	3	4	20.7	4
Saline: Benton, Ark	20	1	2	22.4	2
Ouachita:					
Arkadelphia, Ark	17	Feb. 26	4	21.1	Feb. 28
				23.7	2
Camden, Ark	26	Feb. 12	Feb. 22	33.3	Feb. 17
		Feb. 27	13	35.4	6
		23	Apr. 1	34.3	26
Monroe, La	40	18	(2)	40.2	23, 24
Little: Whitecliffs, Ark	25	Feb. 29	7	26.3	4
Sulphur:					
Hagansport, Tex	38	2	7	40.2	2
		23	23	38.7	23
Naples, Tex	22	1	13	26.9	6
Cypress: Jefferson, Tex	18	6	10	20.7	8
Lower Mississippi Basin					
St. Francis: St. Francis, Ark	18	31	(2)	----	----
Coldwater: Sarah, Miss	18	2	4	20.0	2
		6	7	19.3	6
Tallahatchie: Swan Lake, Miss	26	1	(2)	30.1	21
Yazoo: Greenwood, Miss	35	1	(2)	37.9	2
				37.4	6
				37.3	17
				37.3	25
				37.3	27
Yazoo City, Miss	29	1	(2)	35.6	19, 20
				35.6	23
Mississippi:					
New Madrid, Mo	34	Feb. 21	13	36.5	Feb. 26
		25	(2)	40.5	Apr. 4
Caruthersville, Mo	32	Feb. 21	15	34.7	Feb. 26-27
				34.3	8-9
		25	(2)	----	----
Atchafalaya Basin					
Atchafalaya:					
Atchafalaya, La	25	Feb. 26	(2)	26.9	13-18
Morgan City, La	6	19	23	6.4	19
WEST GULF OF MEXICO DRAINAGE					
Mermenteau: Mermenteau, La	5	5	9	5.6	7
Sabine:					
Mineola, Tex	14	2	10	17.4	6
Gladewater, Tex	26	6	15	32.4	10
Bon Wier, Tex	17	Feb. 22	Feb. 29	17.6	Feb. 26
Elm Fork: Carrolton, Tex	6	Feb. 25	1	12.6	Feb. 26
East Fork: Rockwall, Tex	10	Feb. 6	Feb. 9	10.3	Feb. 9
		Feb. 26	8	16.8	Feb. 27
		23	24	11.2	24
Trinity:					
Dallas, Tex	28	Feb. 26	4	40.5	Feb. 27
Rosser, Tex	26	Feb. 29	8	34.8	2
Trinidad, Tex	28	1	13	40.0	5
Long Lake, Tex	40	7	14	42.9	9
Liberty, Tex	24	12	23	26.0	20

[1] Provisional.

[2] Continued at end of month.

CLIMATOLOGICAL DATA FOR MARCH 1948

CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS

[For description of tables and charts, see REVIEW, January 1943, p. 15]

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Section	Temperature								Precipitation					
			Monthly extremes								Greatest monthly		Least monthly	
	Section average	Departure from the normal	Station	Highest	Date	Station	Lowest	Date	Section average	Departure from the normal	Station	Amount	Station	Amount
	° F.	° F.		° F.			° F.		In.	In.		In.		In.
Alabama	59.8	+3.8	Ozark	89	20	Valley Head	19	13	9.58	+3.84	Lockhart	15.22	Waterloo	6.08
Arizona	46.0	−5.3	Gould's Ranch	86	23	Alpine	−25	4	.87	−.19	Tonto Creek Fish Hatchery.	3.68	Maricopa	.08
Arkansas	50.6	−1.9	2 stations	89	[1] 20	2 stations	−14	12	5.72	+.96	Fordyce	11.48	Green Mountain	.96
California	47.0	−4.2	2 stations	88	[1] 28	2 stations	−14	20	4.06	+.45	Squaw Creek Guard Station.	17.75	4 stations	.00
Colorado	27.9	−6.6	Yuma	82	30	Taylor Park	−42	12	1.80	+.47	Wolf Creek Pass	10.55	Olathe	.07
Florida	69.8	+4.4	Ft. Lauderdale	94	24	Niceville	30	29	6.94	+3.60	Monticello	21.14	Lake Trafford	.04
Georgia	58.8	+2.5	Several	90	21	Blairsville	15	13	8.96	+3.86	Valdosta	15.94	Milledgeville	5.35
Idaho	32.1	−3.6	Bliss	72	25	Island Park Dam	−28	[1] 5	1.70	−.07	Roland	6.90	M[illegible]	.04
Illinois	40.9	−.1	Sparta	85	20	Jacksonville	−14	12	5.06	+1.85	Hardin	9.11	Dixon	2.30
Indiana	42.3	+1.4	3 stations	84	[1] 20	Frankfort	−16	12	4.84	+1.08	Jeffersonville	8.28	Rochester	1.55
Iowa	32.5	−3.2	4 stations	77	[1] 24	Sibley	−30	11	2.64	+.93	Keokuk	5.22	Alton	.31
Kansas	36.9	−6.5	2 stations	82	[1] 20	3 stations	−25	11	2.73	+1.23	Garnett	7.41	Goodland	.73
Kentucky	49.8	+2.3	Ashland	87	21	2 stations	8	[1] 12	6.24	+1.49	Murray	8.64	Pikesville	3.97
Louisiana	61.6	+1.1	Franklin	94	[1] 21	Plain Dealing	17	12	8.12	+3.19	New Orleans	21.09	DeRidder	.39
Maryland-Delaware.	46.6	+3.7	2 stations, Md	91	21	2 stations, Md	4	5	3.84	+.26	2 stations, Md	5.34	2 stations, Md	2.53
Michigan	29.3	−.6	Benton Harbor	72	26	2 stations	−39	11	3.32	+1.22	Lowell	7.14	White Pine	.53
Minnesota	23.2	−3.5	Winona	73	25	Itasca State Park	−44	10	1.09	−.12	Pigeon River Bridge	3.27	Albert Lea	.21
Mississippi	58.4	+1.4	Eupora	93	25	Hernando	18	12	8.85	+2.93	Biloxi	15.96	Vicksburg	3.64
Missouri	42.5	−1.5	Greenville	87	25	2 stations	−17	[1] 11	4.78	+1.52	New Madrid	8.39	Bethany	1.96
Montana	26.5	−4.7	Townsend	69	29	Summit	−41	10	.84	−.13	Summit	4.26	Opheim, No. 2	.02
Nebraska	32.1	−4.4	North Loup	84	24	Nenzel (near)	−32	11	1.05	−.07	Wymore	4.70	Burwell	.16
Nevada	35.7	−4.8	Overton	79	[1] 26	2 stations	−11	[1] 5	.78	−.20	Marlette Lake	4.00	3 stations	.00
New England	32.0	−.4	Westbrook, Conn	76	22	2 stations	−32	6	3.10	−.41	Somerset, Vt	5.67	East Ryegate, Vt	1.29
New Jersey	42.0	+2.6	6 stations	86	21	Layton	−12	6	3.57	−.24	Paterson	5.44	Millville	2.20
New Mexico	38.1	−5.5	Carlsbad	86	15	Eagle Nest	−32	5	.88	+.13	Batesmans Ranch	4.20	5 stations	.00
New York	32.9	+.6	Patchoque	77	22	Stillwater Reservoir	−29	12	3.51	+.44	Hoffmeister	7.07	Dannemora	1.46
North Carolina	53.3	+6.7	2 stations	93	[1] 21	Mount Mitchell	11	28	5.38	+1.16	Rock House	12.68	Manteo	1.52
North Dakota	17.6	−6.3	Mott	64	22	Langdon	−40	10	.45	−.34	Hillsboro	1.30	3 stations	T
Ohio	42.0	+3.0	Ironton	85	21	Mansfield	−20	12	4.83	+1.36	Shaker Heights	10.23	Mineral Ridge	2.27
Oklahoma	44.7	−6.0	3 stations	88	[1] 24	Kenton	−18	6	3.11	+.91	2 stations	7.16	2 stations	.59
Oregon	37.6	−3.3	Lake Creek	83	29	Joseph	−10	10	2.98	+.22	Valsetz	13.03	McNary Dam	.11
Pennsylvania	39.9	+2.1	Phoenixville	90	22	Albion	−18	12	3.71	+.20	Youngsville	7.49	Butler	1.54
South Carolina	57.4	+2.6	Sumter	90	21	Walhalla	17	13	7.36	+3.30	Walterboro	11.30	Batesburg	4.08
South Dakota	27.9	−3.4	Winner	85	24	4 stations	−29	[1] 10	.41	−.70	Victor	1.40	2 stations	T
Tennessee	52.4	+2.8	2 stations	85	20	Dover	14	13	7.09	+1.74	Monteagle	11.04	Greeneville	3.34
Texas	56.1	−2.4	2 stations	98	[1] 15	Spearman	−12	6	1.34	−.65	Naples	5.78	4 stations	.00
Utah	31.5	−6.8	4 stations	72	[1] 24	Moon Lake	−24	11	2.01	+.56	Alta	13.30	Callao	T
Virginia	49.0	+3.1	3 stations	90	21	Big Meadows	4	5	4.23	+.59	Pinnacles	8.68	Washington, Va	1.66
Washington	38.9	−2.7	2 stations	75	28	2 stations	−4	[1] 3	2.71	−.85	Denney Creek	13.32	Wilbur	.00
West Virginia	46.7	+4.2	Inwood	89	21	Terra Alta	0	5	4.30	+.39	Cranberry Glades	6.46	Hamlin	2.53
Wisconsin	28.1	−1.3	Ellsworth	73	25	Long Lake	−44	11	2.00	+.25	Williams Bay	4.58	Alma	.54
Wyoming	26.2	−3.7	Torrington (city)	75	24	Moran	−40	11	.72	−.41	Snake River	3.65	3 stations	T
Alaska (Feb.)	−3.4	−11.4	Radioville	54	27	Allakaket	−50	25	1.06	−.82	Latouche	10.46	Wainwright	.02
Hawaii	68.8	−.2	Mahukona	86	18	Haleakala Ranger Station.	35	14	12.61	+4.24	Kuki	89.00	Puako	.00
Puerto Rico	73.8	+.4	Ponce	94	[1] 11	Cayey (2)	51	1	1.61	−1.49	Rio Blanco	7.25	Potala	.00

[1] Other dates also.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR MARCH 1948

District and station	Elevation of instruments			Pressure			Temperature of the air													Precipitation				Wind										
	Barometer above sea level	Thermometer above ground	Anemometer above ground	Station	Sea level	Departure from normal	Mean	Departure from normal	Maximum	Date	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch or more	Average hourly velocity	Prevailing direction	Maximum velocity: Miles per hour	Maximum velocity: Direction	Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
New England	Ft.	Ft.	Ft.	Mb.	Mb.	Mb.	°F.	°F.	°F.		°F.	°F.		°F.	°F.		°F.	%	In.	In.	In.		Mi.								0-10	In.	In.	
							34.2	+1.2										77	3.36	−0.1											6.0			
Eastport	75	67	82	1,015.6	1,018.6	+5.7	27.8	−1.1	57	20	35	−6	5	21	31	1,151	22	76	2.80	−1.0	0.59	16	11.6	n.	40	e.	8	8	6	17	6.4	20.1	T	1
Portland, Maine [2]	103	6	43	1,014.6	1,018.3	+4.8	30.8	−.3	70	22	42	−13	6	20	45	1,060	24	78	2.63	−1.2	.79	11	9.4	s.	29	w.	22	10	5	16	5.7	15.5	0	0
Concord [2]	289	5	45	1,007.8	1,019.0	+4.8	31.0	+1.9	68	22	45	−13	1	17	49	1,050	21	73	2.25	−.8	.64	10	7.5	nw.	28	nw.	24	10	6	15	5.6	16.2	0	1
Burlington [2]	403	6	51	1,002.7	1,018.0	+3.1	27.7	−1.4	71	31	41	−20	6	15	49	1,156	20	76	1.99	.0	.53	16	11.0	s.	37	s.	16	9	7	15	6.3	12.4	0	2
Boston [2]	124	33	62	1,014.2	1,018.9	+4.7	38.0	+2.4	72	22	47	1	5	29	34	837	28	70	3.14	−.4	.89	13	12.9	sw.	36	sw.	19	10	8	13	5.7	11.8	0	1
Nantucket [2]	12	4	34	1,018.6	1,019.0	+5.1	37.3	+1.8	62	20	44	13	5	30	25	860	32	84	4.08	+.3	1.03	16	15.4	s.	40	sw.	16	7	11	13	6.5	1.8	0	3
Block Island	26	11	46	1,017.3	1,018.3	+3.7	36.9	+1.5	64	22	43	7	5	30	24	874	32	85	4.75	+.9	1.34	12	16.6	s.	38	n.	4	11	7	13	5.8	3.1	0	2
Providence [2]	159	65	60	1,012.9	1,019.0	+4.4	39.4	+3.7	75	22	48	5	5	31	33	793	27	73	3.73	+.2	.95	10	9.8	n.	38	sw.	20	10	7	14	5.9	8.7	0	1
Hartford [2]	159	5	44	1,013.2	1,019.3	+4.1	36.3	+1.3	75	22	47	−4	6	26	43	890	28	78	3.74	+.2	.97	15	9.6	s.	32	s.	19	8	8	15	6.1	11.8	0	2
New Haven [2]	107	5	39	1,015.2	1,019.3	+3.4	36.6	+2.1	74	22	46	1	6	28	32	878	28	76	4.48	+.7	1.01	2	7.5	n.	20	sw.	27	9	8	14	6.1	9.3	0	2
Middle Atlantic																																		
							45.1	+4.1										73	3.86	+.4											6.4			
Albany [2]	97	6	40	1,014.9	1,018.6	+3.0	31.9	+2.1	70	31	44	−21	6	19	56	1,029	24	74	1.92	−.7	.69	12	10.5	w.	33	w.	24	7	9	15	6.6	12.3	0	1
New York [4]	314	415	454	1,007.8	1,019.6	+4.0	42.0	+4.3	73	22	51	8	3	33	29	714	30	69	3.71	+.1	1.04	14	15.7	n.	47	sw.	16	9	10	12	6.1	3.6	0	1
Harrisburg [2]	374	30	49	1,005.1	1,019.3	+2.7	43.0	+4.1	83	21	54	11	5	32	36	681	32	68	3.34	+.3	1.48	12	9.0	nw.	34	s.	16	8	6	17	6.7	.9	0	2
Philadelphia [4]	114	174	150	1,014.6	1,019.0	+2.4	44.8	+4.0	84	21	54	12	5	36	32	638	34	74	4.14	+.8	.91	14	9.0	s.	27	s.	16	9	6	16	6.4	2.2	0	1
Reading	323	47	306	1,006.8	1,019.0	+2.7	44.0	+3.4	80	21	54	11	5	34	32	655	----	---	3.94	+.4	1.07	13	12.8	se.	37	n.	4	8	9	14	6.5	.9	0	1
Scranton	805	72	104	988.8	1,018.6	+2.7	39.0	+3.3	71	22	49	0	6	29	39	805	----	---	3.54	+.3	.81	13	7.1	n.	29	sw.	16	8	9	14	5.9	7.8	0	0
Atlantic City	52	37	172	1,017.3	1,019.3	+3.0	42.0	+3.4	84	22	49	13	5	35	33	716	35	80	3.48	−.1	.78	13	17.6	n.	42	s.	16	8	7	16	6.7	T	0	3
Trenton	190	89	107	1,012.2	1,019.3	+3.4	43.2	+4.1	82	21	53	10	5	34	34	680	----	---	3.91	+.5	.12	14	10.7	s.	33	sw.	16	8	9	14	6.2	2.2	.0	1
Baltimore [4]	123	100	215	1,014.6	1,019.0	+2.4	47.8	+5.5	89	21	57	16	5	38	31	562	35	70	3.85	+.1	.85	14	11.8	s.	41	s.	27	9	9	13	6.2	T	.0	2
Washington [4]	112	56	100	1,014.9	1,018.3	+1.7	48.9	+6.3	89	21	59	16	5	39	30	522	35	63	5.31	+1.5	1.88	15	8.8	s.	29	n.	27	9	8	14	6.2	.0	.0	2
Cape Henry	18	8	54	1,018.3	1,019.0	+2.4	51.0	+4.4	90	21	59	24	5	43	32	463	44	80	2.43	−1.4	.92	11	13.1	n.	38	n.	12	6	7	18	6.8	.0	.0	3
Lynchburg [2]	686	5	58	993.2	1,018.3	+1.0	49.6	+4.2	83	21	60	20	13	39	32	492	38	72	6.69	+3.2	2.41	16	9.5	s.	32	s.	27	5	9	17	6.6	T	.0	3
Norfolk [4]	91	80	125	1,016.3	1,019.6	+2.3	52.9	+4.7	88	22	62	24	5	44	32	415	42	76	2.82	−1.0	1.00	10	11.5	s.	29	n.	11	6	5	20	7.0	T	.0	2
Richmond [4]	144	11	52	1,013.2	1,018.3	+1.4	51.4	+4.2	86	22	62	19	5	41	33	451	40	76	4.98	+1.3	1.10	15	9.4	s.	34	sw.	27	7	9	15	6.2	T	.0	3
South Atlantic																																		
							57.4	+4.4										78	6.95	+3.2											6.8			
Asheville	2,253	77	92	943.8	1,019.0	+1.0	50.0	+5.1	83	20	60	22	13	40	34	473	40	78	4.41	+.4	1.07	13	10.7	se.	29	se.	31	6	9	16	6.9	1.0	.0	3
Charlotte [4]	779	63	86	990.5	1,019.0	+1.7	55.2	+4.8	85	20	65	27	13	45	31	334	42	72	6.78	+2.6	1.89	11	8.5	s.	26	sw.	27	4	10	17	7.1	.0	.0	3
Greensboro [2]	886	6	56	986.8	1,019.0	+2.4	52.5	+5.4	86	20	64	23	29	41	37	411	42	76	4.85	+.5	1.46	13	10.0	sw.	29	sw.	27	4	12	15	6.6	T	.0	4
Hatteras	11	5	47	1,019.0	1,019.3	+2.4	56.1	+4.1	73	27	62	33	5	50	24	301	50	82	2.97	−1.3	.90	11	15.5	ne.	34	ne.	12	4	4	23	7.9	T	.0	1
Raleigh [4]	376	5	71	1,004.7	1,018.6	+1.3	54.8	+4.6	88	20	66	25	13	44	33	352	43	77	4.88	+1.0	1.38	10	8.7	sw.	28	sw.	16	4	17	10	5.8	T	.0	1
Wilmington	72	73	107	1,018.3	1,019.6	+1.6	58.7	+5.4	83	20	67	29	6	50	27	233	50	80	4.75	+1.6	1.47	12	11.2	s.	34	s.	7	7	6	18	6.6	.0	.0	4
Charleston [4]	48	11	92	1,016.9	1,018.6	+.6	60.2	+2.8	84	20	67	34	13	53	24	187	52	84	8.29	+5.3	1.75	13	11.5	ne.	33	ne.	5	8	6	17	6.6	.0	.0	4
Columbia, S. C. [4]	347	70	91	1,005.8	1,018.6	+.6	58.6	+3.4	86	21	68	32	6	49	29	242	48	75	6.74	+3.3	1.87	13	9.4	s.	26	sw.	27	5	10	16	6.5	.0	.0	5
Greenville, S. C. [2]	1,040	18	36	980.7	1,018.0	+1.7	54.3	+4.4	81	20	64	28	6	45	33	352	43	74	8.38	+3.2	1.74	14	10.6	ne.	32	ne.	28	3	8	20	7.3	.0	.0	5
Augusta [4]	182	62	77	1,011.5	1,018.0	+.7	60.1	+4.1	88	21	70	32	6	50	31	207	47	71	9.15	+5.0	2.31	13	6.7	s.	22	w.	27	3	11	17	7.1	.0	.0	6
Savannah [2]	65	19	51	1,016.3	1,018.6	+.6	62.0	+4.9	84	21	70	38	30	54	31	153	54	82	9.70	+6.6	2.71	12	11.0	s.	31	sw.	27	6	6	19	6.8	.0	.0	3
Jacksonville [4]	43	86	110	1,016.9	1,018.3	.0	66.6	+4.0	86	21	74	40	29	59	23	78	58	82	12.52	+9.6	4.31	13	9.1	s.	43	ne.	31	7	5	19	6.8	.0	.0	7
Florida Peninsula																																		
							74.9	+5.0										79	1.99	−.2											4.7			
Key West [4]	21	10	64	1,016.6	1,017.3	.0	78.2	+5.6	86	24	83	58	30	73	23	0	68	77	1.89	+.5	1.33	6	10.9	se.	26	nw.	28	14	14	3	4.0	.0	.0	1
Miami [4]	25	242	249	1,016.9	1,017.6	−.7	74.7	+4.4	84	28	78	56	29	71	19	0	66	78	.71	−1.9	.23	7	16.2	se.	44	ne.	5	12	15	4	4.8	.0	.0	0
Tampa [2]	35	5	36	1,016.6	1,017.6	−.7	71.8	+5.0	87	20	80	44	29	63	29	15	63	83	3.37	+.9	1.04	11	10.0	se.	30	s.	31	9	14	8	5.3	.0	.0	3
East Gulf																																		
							60.6	+2.9										78	10.75	+5.5											7.0			
Atlanta [2]	1,173	33	72	975.6	1,017.6	−.4	55.7	+3.7	85	20	66	28	13	46	32	320	46	76	10.19	+4.8	3.54	15	11.8	nw.	29	nw.	23	5	8	18	7.0	.0	.0	7
Macon [4]	370	79	87	1,004.1	1,017.6	−.3	59.0	+2.3	84	20	69	32	13	47	36	226	47	72	7.53	+2.6	1.83	14	7.7	s.	23	sw.	27	4	8	19	7.3	.0	.0	9
Apalachicola	35	11	51	1,015.9	1,017.3	−.3	64.8	+3.6	78	23	71	42	13	59	21	73	60	86	13.48	+9.2	8.17	14	10.1	se.	32	se.	5	6	10	15	7.2	.0	.0	8
Pensacola [4]	56	54	79	1,014.6	1,016.9	−1.4	63.9	+3.6	82	31	70	36	13	58	29	114	58	84	16.53	+11.8	6.02	16	9.6	se.	33	e.	6	6	8	17	6.9	.0	.0	10
Anniston	618	6	32	998.6	1,018.0		56.6	+2.5	84	20	68	27	13	46	39	303	46	76	8.61	+3.0	2.25	14	----	ne.	--	------	--	4	8	19	----	T	.0	7
Birmingham [2]	700	5	63	991.9	1,017.3	−1.0	57.2	+2.4	86	20	68	23	13	46	38	290	46	76	6.73	+1.0	1.81	13	11.4	s.	35	se.	6	6	8	17	6.9	.0	.0	7
Mobile [4]	57	86	161	1,014.6	1,016.6	−1.4	63.4	+3.7	82	31	71	33	13	56	30	132	55	82	11.48	+5.5	3.73	13	10.1	s.	25	sw.	16	3	8	20	7.4	.0	.0	5
Montgomery [4]	218	92	105	1,009.1	1,017.3	−1.0	60.9	+3.1	86	20	70	33	13	50	31	197	50	76	8.00	+3.5	2.33	13	8.5	s.	38	e.	2	6	8	17	7.6	.0	.0	6
Meridian [4]	375	67	92	1,002.7	1,016.3	−1.3	59.4	+2.3	85	21	69	27	13	50	36	233	50	75	10.66	+5.4	3.14	11	8.4	s.	26	sw.	16	7	5	19	6.9	.0	.0	6
Vicksburg [4]	247	82	102	1,006.8	1,015.6	−2.4	59.7	+1.2	87	20	69	27	12	50	33	236	47	74	3.90	−1.7	1.23	11	10.8	n.	27	s.	30	6	4	21	7.3	.0	.0	6
New Orleans	53	76	84	1,013.9	1,015.9	−1.7	65.3	+2.5	83	26	72	37	13	58	25	110	58	82	21.09	+16.4	10.93	11	8.3	se.	24	e.	5	2	9	20	7.3	.0	.0	7
West Gulf																																		
							58.3	−1.7										72	2.15	−.8											6.9			
Shreveport [2]	249	5	64	1,005.8	1,014.9	−2.0	57.2	−1.2	83	31	68	20	12	47	34	293	45	70	3.39	−.7	1.56	13	11.8	s.	34	s.	19	5	11	15	6.9	T	.0	7
Fort Smith [2]	463	6	30	998.0	1,014.6	−1.7	49.4	−3.2	84	20	60	7	11	39	38	505	36	67	2.95	−.1	.86	7	10.1	ne.	35	sw.	19	12	2	17	6.2	1.2	.0	4
Little Rock [2]	357	26	58	1,002.4	1,015.6	−1.3	51.8	−1.2	84	19	61	17	12	42	33	431	41	69	6.43	+1.8	2.84	12	10.9	ne.	42	sw.	26	7	8	16	6.7	T	.0	9
Austin [2]	605	5	41	992.9	1,014.6	−.6	58.0	−2.7	90	30	70	18	12	46	41	286	44	66	1.35	−1.0	.49	10	12.0	s.	32	s.	18	6	6	19	6.9	T	.0	6
Brownsville [2]	57	5	54	1,010.2	1,012.2	−2.0	67.5	−.7	87	26	76	32	11	59	36	91	60	82	.57	−1.0	.41	5	12.7	se.	41	s.	15	2	7	22	8.1	T	.0	1
Corpus Christi [2]	20	6	33	1,012.9	1,013.5	−2.1	63.2	+.1	86	26	72	28	11	54	38	158	56	84	2.51	------	1.89	6	13.5	se.	38	s.	18	2	6	23	8.0	T	.0	1
Dallas [2]	512	34	45	995.9	1,014.9	−1.4	54.0	−3.4	85	30	65	12	11	43	34	380	39	62	2.83	−.1	1.69	7	12.6	s.	42	w.	30	11	6	14	5.7	T	0	3
Fort Worth [2]	679	40	56	990.2	1,014.6	−1.3	52.8	−3.9	85	24	64	11	11	42	34	403	40	65	1.07	−1.2	.38	8	14.1	s.	44	w.	30	12	6	13	5.6	T	0	4
Galveston [4]	54	122	129	1,012.9	1,014.9	−2.0	61.2	−1.2	77	31	66	31	12	56	25	176	55	85	1.40	−1.3	.81	9	13.6	e.	29	se.	18	5	9	17	7.2	0	0	3
Houston [4]	138	157	190	1,009.5	1,014.6	−2.3	62.1	−1.2	85	31	70	24	12	54	30	191	54	79	1.64	−1.9	.96	8	12.1	n.	32	se.	18	6	6	19	7.0	0	0	1
Palestine	510	64	72	997.0	1,015.2	−1.4	57.6	−1.5	86	30	68	16	12	47	40	298	43	64	1.44	−2.0	.67	9	9.3	s.	28	nw.	22	8	6	17	6.4	.1	0	4
Port Arthur [4]	34	59	134	1,013.5	1,014.6	−2.0	62.4	+.5	81	19	70	28	12	55	26	165	54	81	1.82	−1.4	1.05	9	14.9	s.	35	s.	18	4	8	19	7.2	0	0	3
San Antonio [2]	693	6	51	989.2	1,010.2	−5.4	60.4	−2.4	92	30	73	21	11	48	49	234	44	62	.59	−1.2	.32	9	10.7	ne.	45	nw.	22	4	4	23	7.5	T	0	3
Ohio Valley and Tennessee																																		
							47.4	+4.3										72	5.74	+1.5											7.0			
Chattanooga [2]	762	6	66	989.8	1,017.6	−.4	54.7	+5.6	85	20	66	25	13	44	38	346	43	72	9.18	+3.4	2.54	14	10.1	s.	42	w.	31	3	11	17	7.1	T	.0	6
Knoxville [5]	995	27	71	981.4	1,017.3	−.3	54.2	+6.7	82	20	64	22	13	44	39	360	41	67	5.19	+.1	1.44	11	10.6	sw.	43	w.	31	5	8	18	7.2	T	.0	4
Memphis [2]	399	5	49	1,001.4	1,015.6	−2.0	52.4	+.5	83	19	62	20	12	43	34	424	44	74	8.21	+3.0	2.03	12	10.3	s.	30	s.	19	5	6	20	6.9	T	.0	8
Nashville [2]	546	5	72	997.0	1,016.6	−1.4	52.8	+3.6	83	20	64	21	13	42	35	405	41	72	6.49	+1.4	1.46	13	11.3	s.	43	sw.	19	5	10	16	7.0	T	.0	5
Lexington [2]	989	4	58	980.0	1,016.9	−.7	47.6	+3.9	78	21	57	12	12	38	34	548	37	74	7.06	+2.7	2.78	15	----	s.	--	------	--	6	7	18	6.8	T	.0	8
Louisville [2]	525	5	54	999.3	1,016.5	−.4	48.8	+4.7	82	20	59	15	12	38	34	509	36	66	7.15	+2.8	1.91	15	10.7	s.	44	sw.	19	4	12	15	7.0	T	.0	4
Evansville [2]	431	6	40	1,000.3	1,016.3	−1.3	46.9	+2.5	81	20	57	11	12	36	35	568	38	77	3.77	−.4	1.10	14	11.3	s.	50	sw.	19	4	6	21	7.3	.6	.0	4
Indianapolis [2]	823	5	54	985.8	1,016.3	−.3	41.2	+2.4	79	20	51	−5	12	31	36	738	32	76	6.32	------	2.01	17	12.5	sw.	52	sw.	19	5	6	20	6.9	5.6	.0	4
Terre Haute [2]	575	4	36	995.3	1,016.6	.0	42.6	+2.0	80	20	53	−4	12	32	38	696	34	78	4.89	+1.1	1.49	14	12.5	s.	55	w.	19	4	8	19	7.3	5.7	.0	4
Cincinnati [4]	627	135	148	993.6	1,016.6	−.7	47.4	+6.5	80	21	57	13	12	38	33	556	36	74	6.20	+2.3	1.82	12	5.6	se.	16	se.	19	7	6	18	6.7	.5	.0	7
Columbus [4]	822	90	110	986.8	1,016.9	.0	44.2	+5.1	77	21	54	7	12	35	33	648	33	74	3.86	+.4	1.23	13	11.7	s.	51	sw.	19	6	8	17	6.5	.8	.0	6
Dayton [2]	1,003	6	55	980.0	1,016.9	+.6	41.2	+2.5	77	21	51	−1	12	31	32	739	32	76	4.60	+.9	1.37	13	13.6	ne.	59	w.	19	7	5	19	6.8	3.8	.0	5
Elkins [2]	1,947	5	45	947.9	1,018.0	+.4	44.9	+5.8	78	21	57	11	5	32	47	624	34	76	5.47	+1.7	2.22	16	8.9	s.	35	w.	16	4	9	18	7.2	.1	.0	4
Parkersburg	637	77	84	993.9	1,017.3	−.3	48.3	+5.5	82	21	59	13	12	37	37	533	35	65	4.02	+.5	.79	12	8.2	se.	30	s.	19	6	8	17	6.8	T	.0	3
Pittsburgh [2]	842	39	54	986.1	1,016.9	+.3	43.9	+6.7	79	21	55	9	12	33	39	659	30	65	3.69	+.7	1.01	17	11.5	s.	47	w.	22	6	8	17	6.8	2.5	.0	4

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR MARCH 1948—Continued

District and station	Elevation of instruments: Barometer above sea level	Thermometer above ground	Anemometer above ground	Pressure: Station	Sea level	Departure from normal	Temperature of the air: Mean	Departure from normal	Maximum	Date	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch or more	Wind: Average hourly velocity	Prevailing direction	Maximum velocity: Miles per hour	Direction	Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
LOWER LAKES	Ft.	Ft.	Ft.	Mb.	Mb.	Mb.	°F.	°F.	°F.		°F.	°F.		°F.	°F.		°F.	%	In.	In.	In.		Mi.								0-10	In.	In.	
							35.0	+2.7										76	3.91	+1.2											6.6			
Buffalo [3]	768	34	96	988.8	1,017.6	+2.0	35.4	+3.8	69	26	45	0	12	25	42	940	26	76	3.24	+.7	1.07	14	14.8	sw.	54	sw.	16	5	12	14	6.6	4.2	0	4
Canton	448	10	61	1,000.7	1,017.3	+2.7	28.7	+1.1	71	31	40	−28	5	18	43	1,122	21	72	2.94	+.4	.90	14	9.5	sw.	35	w.	16	8	6	17	6.5	8.5	.0	3
Oswego	335	71	85	1,006.4	1,019.3	+3.7	33.2	+2.1	69	27	42	−3	6	25	43	987	22	68	3.88	+1.3	.92	16	10.9	se.	32	s.	19	4	12	15	6.8	15.6	.0	5
Rochester [3]	523	4	69	998.3	1,018.0	+2.1	34.1	+4.3	71	26	45	−3	6	24	44	958	26	79	2.91	+.2	.71	14	11.1	s.	46	sw.	16	7	8	16	6.7	12.0	.0	5
Syracuse [3]	596	5	57	995.9	1,018.6	+3.0	33.0	+3.3	73	27	45	−10	6	21	45	990	26	74	2.63	−.7	.57	15	11.6	s.	47	s.	19	4	9	18	7.1	12.5	.0	5
Erie [4]	714	57	81	990.9	1,017.6	+1.7	37.1	+3.6	72	19	45	5	12	29	31	863	28	80	4.71	+2.1	1.80	16	9.7	ne.	37	sw.	19	8	8	15	6.3	10.6	.0	3
Cleveland [3]	762	27	54	988.5	1,017.3	+1.0	38.9	+4.4	73	20	49	−5	12	29	34	813	30	76	5.81	+3.1	2.76	13	12.4	s.	57	w.	19	7	4	20	6.8	7.1	.0	4
Sandusky	629	5	67	993.6	1,017.3	+.4	37.6	+2.5	73	19	46	1	12	30	31	849	----	---	5.06	+2.4	2.03	16	10.8	e.	42	w.	19	11	1	19	6.1	9.0	.0	4
Toledo [3]	628	5	47	993.2	1,016.9	+.3	36.0	+2.2	71	19	46	−10	12	26	33	900	29	78	3.94	+1.4	1.43	13	13.6	sw.	57	sw.	19	6	6	19	6.8	4.8	.0	4
Fort Wayne [3]	857	5	34	984.8	1,016.6	.0	37.2	+1.1	72	20	47	−7	12	27	38	860	30	80	4.52	+1.3	1.34	11	10.9	s.	61	s.	19	9	2	20	6.7	5.9	.0	4
Detroit [3]	730	5	77	990.2	1,017.6	+1.3	34.8	+1.8	65	19	44	2	5	26	31	932	28	80	3.32	+.9	.91	13	10.7	n.	36	sw.	29	7	6	18	6.6	4.5	.0	4
UPPER LAKES																																		
							28.3	+.6										79	3.14	+1.0											6.2			
Alpena	609	5	89	993.9	1,017.3	+1.4	26.3	+.8	66	21	35	−9	11	18	37	1,198	21	82	2.85	+.9	.86	11	10.9	se.	29	n.	27	10	6	15	6.2	9.0	.2	1
Escanaba	612	51	72	993.2	1,016.6	.0	23.6	−.6	49	26	33	−14	5	14	36	1,284	17	80	1.25	−.6	.59	7	11.0	n.	59	n.	27	11	11	9	5.2	2.8	.0	0
Grand Rapids [4]	707	70	244	989.8	1,016.6	+.3	34.8	+1.4	68	21	43	3	5	26	32	940	26	81	6.30	+3.8	2.15	13	11.8	sw.	36	sw.	29	8	4	19	6.7	17.6	.0	5
Lansing [4]	878	5	90	983.7	1,016.9	+1.0	33.2	+1.0	64	19	43	−1	5	24	36	989	24	77	5.21	+2.9	2.71	15	9.2	sw.	26	w.	19	7	7	17	6.3	11.6	.0	1
Marquette	734	44	73	988.8	1,016.9	+.6	25.0	+.2	63	23	34	−9	11	16	31	1,238	19	78	1.47	−.8	.41	9	8.5	n.	34	sw.	25	6	11	14	6.2	9.4	T	2
Sault Sainte Marie [3]	614	10	52	993.6	1,017.3	+.7	21.9	+1.3	52	21	32	−20	11	12	36	1,336	16	84	2.14	+.4	.64	12	10.8	e.	31	nw.	24	7	6	18	6.8	10.0	.7	1
Chicago [3]	673	5	38	990.9	1,015.9	−.7	36.1	+1.6	73	26	44	1	12	28	37	895	28	76	4.65	+2.1	2.50	13	11.3	s.	33	sw.	21	8	3	20	6.9	10.3	.0	4
Green Bay	617	5	32	993.2	1,016.6	+.7	27.4	−1.2	59	23	38	−12	11	17	37	1,168	19	70	1.91	−.1	.78	11	8.6	se.	33	ne.	27	7	11	13	6.0	2.3	.0	0
Milwaukee [3]	681	33	66	990.5	1,016.3	+.4	31.9	+1.8	67	26	40	−3	12	24	37	1,029	24	74	3.59	+1.2	1.56	12	14.8	sw.	43	n.	27	6	10	15	6.4	12.6	.0	3
Duluth [4]	1,133	5	47	973.9	1,016.6	.0	23.2	−.5	55	23	31	−23	10	15	36	1,298	16	86	2.04	+.5	.95	11	12.1	ne.	28	w.	8	13	8	10	5.3	11.4	3.5	3
NORTH DAKOTA																																		
							17.4	−4.5										86	.56	−.3											6.1			
Fargo [3]	940	5	47	981.0	1,017.3	.0	17.7	−5.0	48	25	28	−34	10	8	40	1,466	14	86	.87	−.1	.28	9	12.	n.	37	se.	25	9	10	12	6.1	7.1	.0	1
Bismarck [3]	1,677	5	41	954.6	1,018.0	+.4	17.2	−4.7	55	22	28	−31	10	6	53	1,481	14	90	.39	−.5	.13	7	10.4	e.	35	nw.	7	6	10	15	6.3	7.2	2.1	0
Devils Lake	1,478	11	44	961.4	1,017.6	+.3	14.9	−4.9	43	22	25	−32	10	5	34	1,551	12	87	.75	.0	.27	8	9.9	w.	34	ne.	25	10	10	11	5.4	11.0	3.0	0
Williston	1,878	42	50	946.8	1,016.6	.0	19.6	−3.3	60	22	30	−29	10	10	36	1,405	14	81	.23	−.5	.22	3	7.3	se.	24	se.	24	6	7	18	6.6	2.2	T	0
UPPER MISSISSIPPI																																		
Minneapolis-St.							35.5	−.3										76	3.51	+1.1											6.1			
Paul [3]	919	43	74	981.4	1,016.3	+.7	27.3	−2.3	70	25	37	−27	11	18	34	1,168	19	74	1.43	.0	.54	8	11.1	se.	35	ne.	26	8	11	12	6.0	5.2	.0	2
La Crosse [3]	714	5	29	989.2	1,016.3	+.4	29.1	−.7	68	25	40	−17	11	18	40	1,112	20	74	1.02	−.6	.39	8	9.2	nw.	30	ne.	26	8	13	10	5.7	4.4	.0	0
Madison [3]	974	27	39	979.7	1,016.3	−.3	30.3	−.3	70	26	41	−9	11	19	40	1,079	23	76	2.86	+.8	.90	10	11.9	s.	36	n.	26	7	11	13	6.1	16.6	T	1
Charles City	1,015	10	51	978.7	1,016.9	+.3	29.8	−.9	72	25	40	−19	11	19	41	1,091	----	---	1.96	−.2	.67	8	7.2	n.	23	n.	27	15	9	7	4.4	17.0	.0	2
Moline [3]	606	6	50	993.2	1,016.3	−.3	35.6	+.8	75	26	46	−2	12	26	40	914	27	74	3.46	+1.2	2.03	12	12.2	n.	29	sw.	26	9	7	15	6.3	8.0	.0	5
Des Moines [4]	860	5	99	-------	1,016.3	.0	33.0	−2.9	72	25	42	−12	11	24	36	993	26	76	3.16	+1.4	1.36	9	11.2	n.	32	n.	27	10	9	12	5.8	19.4	.0	2
Dubuque	699	60	79	983.8	1,015.9	−.7	33.7	−.3	71	25	44	−5	11	24	38	971	25	71	3.76	+1.7	1.39	10	6.7	nw.	19	se.	18	9	8	14	6.0	11.0	.0	4
Burlington [3]	702	4	36	989.5	1,015.6	−1.3	36.6	−1.3	77	26	47	−2	12	27	35	882	30	80	3.60	+1.0	2.25	15	12.6	nw.	34	sw.	26	7	10	14	6.5	4.3	.0	4
Cairo	357	5	99	1,003.1	1,016.3	−.6	40.6	+1.9	81	20	58	15	12	41	27	495	----	---	6.62	+2.9	2.17	13	12.2	sw.	43	sw.	19	4	11	16	6.8	.5	.0	6
Peoria [3]	609	7	26	993.2	1,015.9	−.7	37.5	+1.5	73	26	47	−4	12	28	32	854	30	77	3.94	+1.2	1.07	15	11.8	n.	47	sw.	19	9	5	17	6.5	3.0	.0	5
Springfield, Ill. [4]	636	5	191	992.2	1,015.6	−.7	39.2	+1.0	77	20	48	−8	12	30	33	798	32	78	4.86	+1.7	1.01	15	14.6	n.	56	sw.	19	8	4	19	6.7	4.4	.0	4
St. Louis [4]	568	33	59	995.3	1,015.9	−1.0	44.3	+.2	82	20	52	7	12	36	30	645	----	---	5.31	+1.9	1.27	13	13.3	s.	47	s.	19	7	8	16	----	4.5	.0	4
MISSOURI VALLEY																																		
							35.1	−2.9										76	2.65	+.8											6.3			
Columbia, Mo. [4]	784	6	66	985.8	1,014.6	−2.0	41.8	−1.1	82	20	52	−4	12	32	42	724	32	75	3.72	+.8	1.00	16	9.3	s.	29	sw.	19	9	10	12	5.6	3.0	.0	7
Kansas City [3]	963	38	76	979.3	1,014.9	−1.4	39.6	−3.1	77	25	49	−3	11	30	32	788	29	68	4.84	+2.5	1.50	15	13.2	sw.	39	sw.	14	8	7	16	6.4	7.4	.0	8
St. Joseph [3]	967	5	51	979.3	1,014.9	−1.4	36.4	−4.1	78	24	47	−8	12	26	42	889	28	76	3.73	+1.2	1.22	10	9.7	n.	32	nw.	27	11	5	15	6.0	15.6	.0	3
Springfield, Mo. [3]	1,324	5	50	966.5	1,014.9	−1.4	41.9	−1.7	81	20	52	−3	11	32	36	719	33	73	4.03	+.6	1.25	12	14.2	s.	43	sw.	19	6	8	17	6.9	3.0	.0	6
Topeka [4]	987	65	87	978.7	1,015.2	−.7	38.6	−4.0	78	20	48	−5	11	29	37	819	30	76	4.51	+2.4	1.43	12	10.7	n.	28	n.	27	11	3	17	6.3	8.0	.0	5
Lincoln [4]	1,189	6	81	971.2	1,015.6	−.7	33.4	−4.1	78	24	43	−14	11	24	39	979	26	80	2.22	+1.0	.61	11	10.4	n.	36	nw.	26	9	5	17	6.2	20.8	.0	0
Omaha [3]	1,105	5	68	974.6	1,015.9	−.7	32.0	−4.1	77	24	42	−16	11	22	41	1,023	25	78	1.74	+1.4	.73	8	12.5	n.	38	n.	31	8	7	16	6.4	27.2	.0	1
Valentine	2,598	46	54	921.1	1,015.6	−1.0	28.9	−3.4	76	24	41	−27	11	16	48	1,118	20	71	.50	−.5	.19	6	8.8	w.	38	nw.	26	8	11	12	5.8	9.2	.0	0
Sioux City [3]	1,138	5	40	973.2	1,015.9	−.7	30.6	−1.5	74	24	41	−19	11	20	43	1,066	24	79	.77	−.4	.34	7	12.1	nw.	39	n.	27	7	6	18	6.6	9.2	.0	0
Huron [3]	1,301	5	41	967.5	1,016.6	−.7	27.4	−1.5	70	25	38	−16	10	17	41	1,170	22	83	.42	−.5	.24	10	13.0	nw.	35	e.	24	4	11	16	7.0	3.8	.0	1
NORTHERN SLOPE																																		
							28.5	−3.9										69	.66	−.3											6.9			
Billings [3]	3,570	16	39	887.2	1,014.2	−3.4	29.7	−4.3	61	29	40	−15	10	19	31	1,093	20	70	.79	------	.28	13	11.5	sw.	40	sw.	22	4	7	20	7.2	12.0	.0	0
Havre	2,507	11	67	923.8	1,015.6	−1.0	24.8	−2.3	61	22	36	−19	10	14	39	1,246	16	71	.47	.0	.22	9	9.2	w.	38	sw.	22	3	9	19	7.1	7.2	.0	0
Helena [3]	4,124	5	43	869.6	1,016.6	+1.4	26.2	−5.5	58	22	37	−16	10	15	39	1,203	18	70	.49	−.3	.19	10	8.7	w.	33	w.	18	3	8	20	7.4	7.3	T	0
Missoula [3]	3,263	4	91	898.7	1,015.2	−2.1	31.6	−1.9	60	28	41	−2	10	22	32	1,035	23	72	.41	−.4	.13	9	7.2	se.	29	nw.	29	3	10	18	7.6	4.7	.0	0
Kalispell	2,973	48	56	903.2	1,014.2	−1.7	28.6	−4.3	58	28	38	−9	10	19	32	1,130	20	69	1.24	+.3	.37	13	6.1	w.	19	sw.	22	4	5	22	7.3	19.3	.6	0
Miles City [3]	2,371	5	28	929.2	1,015.6	−2.0	28.7		63	29	40	−14	10	17	44	1,126	20	72	.61	------	.40	9	------	nw.	------			6	5	20	7.0	6.4	.0	0
Rapid City [3]	3,259	5	56	897.7	1,014.6	−2.7	29.3	−2.4	72	24	41	−14	10	18	44	1,108	20	72	.14	−.8	.05	4	13.5	nw.	53	nw.	26	7	8	16	6.7	1.9	.0	0
Cheyenne [3]	6,094	22	40	806.6	1,013.9	−1.3	27.7	−5.4	64	24	39	−19	11	16	51	1,155	16	63	.41	−.6	.16	7	12.7	nw.	37	w.	28	7	13	11	6.2	4.1	.0	0
Lander [3]	5,352	6	30	829.7	1,013.9	−1.7	26.5	−5.9	59	24	38	−11	11	15	37	1,192	16	62	1.10	−.1	.38	10	5.7	sw.	27	nw.	25	5	13	13	6.6	18.2	T	0
Sheridan [3]	3,790	5	38	880.1	1,014.6	−2.0	28.6	−2.8	62	29	41	−16	10	17	55	1,126	20	70	1.02	−.1	.31	12	8.2	nw.	36	nw.	20	6	6	19	6.7	12.6	.3	0
North Platte [4]	2,821	11	51	913.0	1,014.6	−1.7	32.0	−4.6	77	24	45	−15	11	19	44	1,022	20	70	.60	−.3	.31	10	7.9	n.	34	n.	26	11	8	12	5.9	8.2	.0	0
MIDDLE SLOPE																																		
							37.6	−6.5										70	2.64	+1.1											5.7			
Denver [4]	5,292	106	113	832.0	1,012.5	−1.7	33.7	−5.6	70	24	45	−5	11	23	40	968	17	58	1.62	+.6	.66	8	8.1	s.	31	sw.	29	12	10	9	5.0	20.8	T	1
Pueblo [3]	4,690	5	36	852.0	1,013.9	+.4	32.0	−8.8	74	24	47	−20	5	17	52	1,026	21	67	1.82	+1.2	.52	10	9.3	nw.	42	sw.	25	14	11	6	4.4	22.4	.0	2
Concordia	1,392	50	58	964.1	1,015.2	−1.7	34.0	−7.0	74	24	43	−11	11	25	36	960	26	74	1.67	+.4	.89	8	9.7	ne.	32	nw.	26	10	6	15	5.8	17.4	.0	1
Dodge City [3]	2,509	5	58	924.5	1,014.2	−1.7	33.8	−9.0	76	25	44	−15	11	23	44	965	26	76	2.00	+1.1	.66	9	16.6	nw.	49	nw.	26	10	7	14	5.6	17.9	T	2
Wichita [3]	1,358	52	64	964.8	1,014.6	−.6	39.9	−5.2	77	24	49	−3	11	31	32	781	30	73	1.51	−.2	.70	10	16.1	s.	40	nw.	26	10	2	19	6.5	4.8	.0	3
Oklahoma City [4]	1,214	10	47	970.9	1,014.9	−.7	44.6	−5.4	81	24	54	1	11	35	32	639	34	72	6.18	+4.2	2.13	10	10.7	s.	33	nw.	20	9	7	15	6.1	12.5	.0	4
Tulsa [3]	674	6	60	989.8	1,014.6		44.9	−4.5	81	20	55	−3	12	34	35	631	34	68	3.70	+.7	1.08	9	13.9	n.	38	nw.	26	9	6	16	6.2	9.7	.0	4
SOUTHERN SLOPE																																		
							50.0	−3.8										53	.62	−.2											5.4			
Abilene [3]	1,738	4	59	952.3	1,013.2	−1.7	52.5	−2.7	87	25	65	9	11	40	41	411	32	54	1.00	−.3	.77	3	17.0	s.	46	sw.	14	13	6	12	5.1	T	.0	2
Amarillo [3]	3,676	5	42	885.7	1,013.1	−1.5	40.2	−5.1	81	24	54	−3	11	27	43	765	26	64	.72	.0	.33	6	15.9	sw.	45	w.	30	11	7	13	5.4	4.1	.0	3
Del Rio	960	63	71	978.7	1,011.9	−2.7	62.2	−1.3	90	23	74	24	11	50	45	178	40	50	.11	−.6	.06	4	10.7	se.	41	nw.	31	6	13	12	6.3	.0	.0	0
Roswell	3,614	6	29	888.6	1,012.9	−.6	45.3	−6.0	82	14	62	−5	11	28	52	609	20	45	.64	−.1	.29	4	11.8	n.	49	w.	18	13	10	8	4.8	3.7	.0	0

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR MARCH 1948—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
SOUTHERN PLATEAU	*Ft.*	*Ft.*	*Ft.*	*Mb.*	*Mb.*	*Mb.*	*° F.*	*° F.*	*° F.*		*° F.*	*° F.*		*° F.*	*° F.*		*° F.*	*%*	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
							48.7	−4.6										43	.53	−.2											4.5			
El Paso [2]	3,778	35	85	883.5	1,011.5	−1.4	50.8	−4.1	79	14	64	18	11	38	40	444	20	31	.04	−.3	.04	1	14.3	sw.	47	w.	30	12	13	6	4.6	T	.0	0
Albuquerque [2]	4,972	5	45	833.7	1,011.5	−1.7	40.9	−5.0	70	24	54	8	11	28	37	746	20	50	.41	.0	.19	8	10.4	nw.	47	nw.	30	13	9	9	4.8	1.0	.0	2
Flagstaff	6,907	34	48	786.0	1,015.2	+2.3	29.9	−6.6	62	28	44	−8	4	16	46	1,091	18	62	2.10	.0	.55	14	----	w.	..	------	..	10	10	11	5.5	29.7	.0	0
Phoenix [4]	1,107	39	87	974.3	1,013.5	.0	56.9	−3.8	81	24	69	33	5	45	39	256	29	40	.16	−.5	.12	2	7.7	e.	26	nw.	31	14	10	7	4.2	.0	.0	0
Tucson [2]	2,555	5	39	924.5	1,013.2	+.7	54.0	−3.7	80	13	67	28	5	41	39	341	28	40	.29	−.4	.25	2	7.8	se.	26	sw.	24	11	11	9	4.8	.0	.0	0
Yuma	142	9	54	1,009.1	1,014.2	.0	59.8	−4.3	82	23	73	39	2	46	38	167	30	36	.17	−.2	.17	2	7.2	w.	29	w.	17	21	6	4	2.9	.0	.0	0
MIDDLE PLATEAU																																		
							35.0	−5.4										61	1.26	+.2											6.2			
Reno [2]	4,527	20	52	859.5	1,014.6	−2.0	36.4	−3.6	67	31	52	8	4	21	48	886	21	56	.07	−.7	.03	5	9.4	s.	50	s.	23	7	9	15	6.1	.2	.0	0
Winnemucca	4,339	5	56	864.9	1,014.9	−2.0	35.8	−4.2	66	28	48	7	4	23	44	903	21	58	1.25	+.3	.36	11	8.3	sw.	30	nw.	2	5	7	19	6.9	8.9	.0	1
Modena	5,473	10	46	829.7	1,013.2	−1.0	31.7	−6.5	59	28	44	2	21	20	39	1,035	-----	..	1.14	+.1	.45	8	9.5	sw.	38	s.	24	9	12	10	5.3	7.3	.0	2
Salt Lake City [2]	4,357	32	58	863.9	1,014.2	−2.1	35.6	−4.4	63	23	45	14	11	26	34	911	24	65	2.30	+.5	.73	12	10.0	se.	33	se.	25	7	7	17	6.4	20.5	T	0
Grand Junction [2]	4,602	5	26	855.7	1,013.9	+.4	35.4	−8.2	65	24	46	5	11	25	34	911	24	64	1.54	+.8	.59	11	8.2	e.	36	sw.	25	8	7	16	6.2	14.9	.0	0
NORTHERN PLATEAU																																		
							36.4	−3.3										65	1.03	.0											7.1			
Baker [4]	3,471	36	54	892.3	1,014.9	−3.1	34.8	−2.8	61	28	44	12	10	26	32	938	25	67	1.56	+.5	.64	10	6.1	se.	21	nw.	22	3	10	18	7.4	15.0	.0	0
Boise [2]	2,739	5	49	917.4	1,014.9	−3.1	37.9	−3.5	60	28	48	15	10	28	30	842	28	69	1.42	+.1	.61	14	11.7	se.	34	se.	12	6	6	19	7.0	6.9	.0	0
Pocatello [2]	4,478	5	31	859.1	1,014.6	−2.0	32.7	−3.2	57	28	42	5	10	23	34	1,002	21	62	1.41	+.1	.41	9	11.9	sw.	35	s.	24	6	7	18	7.1	10.5	T	0
Spokane [2]	1,929	6	51	944.1	1,013.9	−2.7	36.2	−3.5	63	28	45	12	10	28	31	890	26	67	.45	−.8	.12	10	8.9	sw.	34	sw.	22	3	11	17	7.5	1.0	.0	0
Yakima [2]	1,076	4	54	975.3	1,014.9	−1.7	40.2	−3.4	72	28	53	20	10	28	39	759	28	61	.29	+.1	.17	5	----	w.	--	------	--	5	11	15	6.5	T	.0	0
NORTH PACIFIC COAST																																		
							44.4	−1.3										76	4.17	+.1											7.8			
North Head	211	5	55	1,007.5	1,015.2	−2.8	44.0	−1.2	61	27	49	34	10	39	19	652	38	78	5.35	−.2	1.59	23	14.3	nw.	56	s.	21	1	11	19	7.8	T	.0	0
Seattle [4]	125	90	321	1,010.5	1,014.9	−2.4	45.2	−1.2	70	27	52	32	3	39	27	611	35	71	3.65	+.6	2.02	17	10.7	s.	38	s.	21	5	8	18	7.1	.9	.0	2
Tacoma	194	172	201	1,007.8	1,014.9	−2.4	43.6	−.6	66	27	50	31	3	37	24	663	-----	---	3.94	+.5	2.18	17	9.9	n.	37	sw.	29	4	11	16	6.9	T	.0	0
Tatoosh Island	86	5	61	1,011.2	1,014.6	−1.7	42.9	.0	57	27	47	34	22	39	15	681	37	80	6.44	−1.4	2.32	19	14.6	e.	49	s.	17	2	6	23	7.6	T	.0	0
Medford [2]	1,329	29	58	968.2	1,016.9	−1.1	43.2	−3.7	71	31	54	24	4	33	42	675	34	74	2.20	+.7	.68	15	----	n.	--	------	--	2	4	25	8.1	T	.0	0
Portland, Oreg. [4]	154	68	106	1,010.2	1,015.9	−2.4	46.1	−.8	72	28	52	33	3	40	24	585	36	74	4.09	+.2	1.76	20	6.2	e.	21	se.	21	2	4	25	8.5	T	.0	0
Roseburg	510	45	76	998.3	1,017.3	−1.7	45.8	−1.3	69	27	54	30	4	37	35	595	37	76	3.55	+.3	.90	20	4.5	sw.	21	sw.	14	1	2	28	8.6	T	.0	0
MIDDLE PACIFIC COAST																																		
							49.7	−2.9										72	4.26	+.7											6.2			
Eureka	60	72	88	1,016.6	1,019.0	−1.0	46.8	−1.5	60	28	53	35	15	41	19	567	40	80	6.16	+.9	1.59	21	7.9	n.	28	se.	15	3	11	17	7.3	.0	.0	0
Red Bluff [2]	353	5	26	1,003.7	1,016.6	-----	49.6	−4.0	78	31	60	29	15	39	34	477	34	62	3.83	+.6	1.71	12	8.8	nw.	34	se.	22	5	12	14	6.4	.0	.0	1
Sacramento [4]	66	92	115	1,014.6	1,016.9	−.7	50.8	−3.5	72	27	61	35	4	41	30	436	38	69	3.68	+1.1	.96	9	7.5	s.	24	nw.	3	10	11	10	5.6	.0	.0	0
San Francisco [4]	155	112	132	1,011.9	1,017.6	−.4	51.7	−2.5	71	27	57	43	25	46	20	412	42	76	3.36	+.2	1.00	11	8.2	w.	34	s.	23	10	9	12	5.6	.0	.0	0
SOUTH PACIFIC COAST																																		
							54.8	−1.5										63	2.32	+.3											5.2			
Fresno [2]	327	5	34	1,005.1	1,016.9	−1.1	53.2	−1.2	77	27	66	33	4	41	38	370	36	60	2.28	+.7	.76	10	5.8	nw.	24	nw.	30	9	10	12	5.8	.0	.0	1
Los Angeles	338	236	263	1,004.4	1,016.9	+.3	55.2	−2.3	76	27	64	42	18	46	30	302	40	64	3.07	+.3	1.39	6	7.6	w.	24	w.	20	14	6	11	4.9	.0	.0	0
San Diego [2]	87	20	55	1,013.9	1,017.3	+.7	55.9	−1.1	74	27	64	41	21	47	28	283	42	66	1.00	−.1	.50	10	6.9	w.	31	s.	24	12	10	9	5.0	.0	.0	0
PANAMA CANAL																																		
Balboa Heights [6]	118	6	97	------	1,010.4	-----	82.2	+.7	95	31	92	69	21	73	24	-----	71	75	T	−.7	-----	0	9.8	n.	29	n.	14	7	24	0	4.7	0	0	0
Cristobal [6]	23	37	92	------	1,011.3	-----	80.2	−.9	84	26	83	74	14	78	8	-----	72	78	1.21	−.3	-----	0	15.2	ne.	26	ne.	13	1	11	19	7.6	0	0	0
ALASKA																																		
Anchorage [2]	132	6	44	1,006.4	1,011.5	-----	19.8	−3.9	42	27	30	−8	1	10	34	1,401	13	65	.67	+.1	.27	8	7.8	n.	41	w.	28	9	7	15	5.7	14.0	7.2	0
Fairbanks [2]	455	5	63	997.3	1,015.2	-----	5.4	−4.2	37	14	21	−34	3	−10	49	1,849	1	72	.55	−.1	.38	7	5.9	nw.	37	sw.	28	12	3	16	5.4	9.2	23.4	0
Juneau [2]	80	6	30	1,009.8	1,010.5	-----	27.8	−6.1	42	12	35	1	23	21	35	1,153	23	77	4.16	−.2	1.81	18	6.4	e.	39	se.	17	6	4	21	7.5	52.6	11.0	0
Nome [2]	22	10	75	1,013.2	1,013.9	-----	5.3	−3.4	33	27	16	−28	4	−6	39	1,843	4	92	1.71	+.9	.50	14	12.4	e.	56	e.	16	7	6	18	6.4	17.1	51.0	0
Annette	113	5	53	1,006.8	1,011.2	-----	36.8	−2.5	46	1	42	27	9	32	16	870	30	74	4.64	−4.0	1.96	16	----	nw.	--	------	..	7	5	19	6.9	10.2	0	0
Barrow	29	5	27	1,016.8	1,017.3	-----	−15.4	−.5	8	8	−8	−45	1	−23	26	2,494	−17	86	.01	−.1	.01	1	9.2	se.	26	------	27	14	8	9	4.8	.2	22.5	0
Bethel [2]	28	5	31	1,012.2	1,013.5	-----	13.9	+3.0	38	27	22	−16	1	6	37	1,582	11	88	2.44	+1.6	.86	16	10.0	ne.	56	------	27	5	7	19	7.3	21.9	10.7	0
Cordova [2]	45	5	32	1,006.0	1,007.8	-----	29.0	−1.1	45	7	36	7	26	20	27	1,151	24	77	2.04	−2.8	.49	14	----	e.	26	n.	31	7	7	17	6.7	21.7	10.0	0
Galena	139	4	66	1,008.8	1,013.9	-----	3.2	+.8	39	27	16	−39	2	−10	43	1,914	0	76	1.08	+.3	.33	13	----	n.	45	sw.	28	12	7	12	5.2	10.2	33.6	0
Gambell	32	5	32	1,012.5	1,013.5	-----	8.6	+3.1	31	31	15	−12	19	3	23	1,748	8	96	1.74	+.9	-----	14	16.0	ne.	44	se.	25	7	15	9	6.0	17.4	32.0	----
Kotzebue [5]	20	5	31	1,015.2	1,015.9	-----	−5.3	−3.5	24	16	4	−34	4	−15	38	2,177	−10	73	.77	+.5	.21	13	13.8	e.	47	w.	28	13	6	12	5.1	7.7	25.3	0
McGrath [2]	341	5	31	1,001.0	1,014.6	-----	6.4	+.5	45	27	20	−39	2	−8	49	1,820	4	76	2.04	+.9	.99	10	----	nw.	44	s.	27	9	8	14	5.8	18.7	28.0	0
Northway [2]	1718	5	32	949.2	1,014.9	-----	14.5	+5.1	39	28	18	−34	23	11	46	1,908	−2	65	.31	.0	.11	5	5.3	e.	27	nw.	28	5	9	17	6.7	2.7	22.7	0
HAWAII																																		
Honolulu [4]	38	86	100	1,015.9	1,017.3	-----	72.4	+1.0	80	10	77	63	9	68	13	0	62	70	1.41	−1.8	.74	9	11.6	ne.	29	ne.	11	7	11	13	6.1	.0	.0	4

[1] Height of barometer cistern above mean sea level on January 1, 1900, or when station was first established since January 1, 1900. When station is moved to new location or airport, the pressure is reduced to the original elevation for homogeneity. These elevations do not represent the present station elevation in most cases.

[2] Data are from airport records. Pressures adjusted to original elevations according to note [1].

[3] Barometric, hygrometric, wind, character of day, and average cloudiness data from airport records; remainder from city office records.

[4] Barometric and hygrometric data from airport records; remainder from city office records.

[5] Barometric, temperature, degree day, and hygrometric data from airport; remainder from city office records.

[6] Bihourly hygrometric data.

NOTE.—Unless otherwise indicated, data in table are city office records.

SEVERE LOCAL STORMS FOR MARCH 1948

[The table hereunder contains such data as have been received concerning severe local storms that occurred during the month. A revised list will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Brownsboro, Tex., and vicinity.	1	12:30 p. m.	350	0	$150,000	Tornado and hail	6 persons injured; 5 homes destroyed, 9 damaged by wind. Light hail. Automobile with 2 occupants tossed 150 yards. Principal property damage in Opelika community, 3 miles west of Brownsboro.
Mabank, Tex.	1	1:30 p. m.	100	0	10,000	Tornado and hail	Moderate hail; no damage. Principal wind damage to buildings.
New Iberia, La.	2-3	Night			5,000	Lightning	Several buildings struck during severe thunderstorm.
Beaufort, S. Car.	5	During night		1		Windsquall	One person drowned as boat overturned during squall.
Kansas	9-11	Began early 9th, in northwest.		2		Blizzard	High winds, heavy drifting snow, and severe low temperatures in all sections. Record depths of snow on ground, 15 to 20 inches in west and north. Many new low March temperature records established; −25° on 11th at Quinter, Healy, and Oberlin. 2 deaths from exposure.
Austin, Tex.	16	2:25 a. m.			800,000	Hail	Diameter of largest stones 3 inches; majority 1 inch. Major loss to roofs of homes; extensive damage to neon lighting, greenhouses, and parked aircraft.
Florence, Ala.	16	2:05 p. m.	100	0	200,000	Tornado	Storm in southeastern part of town. Path 1 mile long, southwest to northeast, through business and residential districts, lifting intermittently. 3 persons injured; about 30 buildings destroyed, and 43 others damaged. Although 6 homes completely destroyed, none of sleeping occupants killed. About one-fifth of damage by water.
Albany to Anderson City, Ga.	16	5:00 p. m.	100	0	5,000	Tornado	Storm first struck eastern suburbs of Albany and moved 1½ miles northeastward to Anderson City. At Albany, a barn, house, garage, and several smaller buildings badly damaged. At Minton, a home severely damaged and several smaller buildings demolished.
Molena, Pike County, Ga.	16	Late afternoon.		0		Tornado	Little damage, moved over sparsely settled area; some damage to timber.
Zebulon, Pike County, Ga.	16	6 p. m.	100	0	2,500	Tornado	Moved from north to south. 3 cabins, several barns, and smaller buildings practically demolished, and planing mill unroofed.
Beckham County, Okla.	18	7-9:30 p. m.	[1] 1-2		40,000	Hail and wind	Path of hailstorm, 30 miles long, affecting Erick, Delhi, Carter, Sayre, and Elk City. Heaviest hail damage southwest of Sayre. Hail up to 2 inches or more in diameter. Worst hailstorm in years. A tornado occurred in connection with storm; details and damage listed below.
Beckham County, Okla.	18	8 p. m.	Narrow	0	35,000	Tornado	Path 15 miles long from 4 miles west of Delhi through Westoak gasoline plant south of Sayre to a point north of Carter. Considerable damage to farm property. 12 houses at Sayre damaged, 12 near Carter, and 15 near Delhi; 4 of the houses near Delhi completely demolished. 3 persons injured.
Custer County, Okla.	18	About 8:30 p. m.	50	0	55,000	Tornado	Path 6 miles long, from ½ mile south of Clinton to 2 miles north. 7 families made homeless. Airport south of Clinton damaged; considerable minor damage to windows and roofs in business section of Clinton. $5,000 damage to hay and feed in storage. 1 person injured.
Kingfisher County, Okla.	18	9:50 p. m.	100	0	25,000	Tornado	Path 4 miles long, from 2 miles east of Kingfisher to about 4 miles northeast. $450 damage to hay, $50 damage to livestock, and $24,500 to buildings.
McClain County, Okla.	18	10-11 p. m.	2,640	0	17,000	Tornado, excessive rains.	Path 6 miles long; 2 houses destroyed, 3 others damaged. Considerable soil erosion, not included in storm damage.
Sedgwick County, Kans.	18	10:23 p. m.	40	0	200,000	Tornado	Struck Beechwood area, 8 miles east-southeast of Wichita. Losses to Federal housing estimated at $95,000; to Beech Aircraft and Government planes on field, $65,000; other miscellaneous losses, $40,000. Several persons sustained minor injuries and 2 required hospitalization. Path 1 mile long; storm from southwest.
Stillwater, Payne County, Okla.	18	11:10-11:13 p. m.	200	0	50,000	Tornado	Path 2 miles long. Tornado traveled 7 blocks, causing considerable damage to buildings along Main Street; then hopped ¼ mile and destroyed farm building. It is possible that the tornadoes on this date in Beckham, Custer, Kingfisher, and Payne Counties were really a single tornado that covered 153 miles in a hit-skip fashion in about 3 hours.
Bracken County, Ky.	19	2:00-2:30 p. m.	440	2	15,000	Tornado	Most violent in vicinity of Brooksville. Path about 10 miles long.
Ohio, practically entire State.	19	Afternoon		6		Gales and tornadoes.	Tornadoes at scattered points in Van Wert, Henry, and Wood Counties. Other tornadoes swept through Bloomingburg, Fayette County; Bethesda, Belmont County; and Mohawk Village, Coshocton County. Evidence of tornado damage at Springfield, Zanesville, and near Galena and Sunbury in Delaware County. 31 persons reported injured. Property losses ranged from broken windows to completely demolished buildings; estimated in millions of dollars.
Kentucky, central and northern portions.	19	All day			10,000	Windstorm	Much minor damage to buildings.
New York, central portion.	19	All day			750,000	Wind	In Syracuse, Oswego, and surrounding area, buildings damaged, trees uprooted, and limbs broken, carrying down power and communication lines. $500,000 of damage due to wetting of raw penicillin when building was unroofed.
West Virginia, entire State.	19	Afternoon and evening			50,000	Wind	In Wood County, few small trees uprooted, windows broken, brickwork blown down, and street signs damaged. In Barbour County, several farm buildings destroyed; 6 head of cattle and 3 horses killed as barn collapsed.
Mt. Pleasant, Pa.	19	7:30-8:00 p. m.		0		Tornado	Over 12 houses damaged, plants wrecked, power and telephone lines down. 3 persons slightly injured. Lumber scattered. Damage in thousands.
Garrett County, Md.	19	Evening			11,000	Wind	Destroyed barn containing 9 tons of hay, large quantity oats and dairy feed; 1 horse and 3 cows perished.
Washita County, Okla.	20	8:00 p. m.	[1] 2½		1,000	Hail	South and southeast of Cloud Chief. Some shingled roofs damaged.
Will Rogers and Tinker Fields, Oklahoma City, Okla.	20	10:10-10:22 p. m.	880	0	10,250,000	Tornado	Greatest property damage from a single tornado ever noted in Oklahoma. Apparently traveled about 10 miles in 12 minutes from Will Rogers Field to Tinker Field, cleaving a path of shattered signs and damaged buildings. Several buildings east and north of Tinker Field damaged or destroyed. From Tinker Field east, two paths; one northeast to the vicinity of 23d St.; other limited to southeast corner of Tinker Field and immediate area northeast. Storm accompanied by hail. 8 injuries, mostly slight. *Tinker Field:* Apparently 2 tornadoes within storm following parallel paths. 50 aircraft destroyed and 50 others damaged. Damage estimated at $10,000,000 to aircraft, $222,000 to buildings, and $15,000 to utility system. *Will Rogers Field:* Damage estimated at $6,000 to planes and $3,000 to hangars, etc. A 98 m. p. h. wind reported at the Weather Bureau Airport Station, and barograph made a vertical line, indicating pressure range between 28.22 and 28.53 inches in a few minutes.
Ross, Tex.	22	3:00 p. m.			2,000	Wind and hail	Light hail; minor wind damage to buildings.
Kerr County, Tex.	22	9:00 p. m.				Hail	Largest hailstones size of baseballs. Storm occurred on Carr Ranch, 10 miles north of Kerrville.
Anderson, S. Car.	23	Early a. m.			2,500	Thunderstorm	Near-gale winds unroofed 6 houses, broke windows, and shattered neon signs.

See footnotes at end of table.

SEVERE LOCAL STORMS FOR MARCH 1948 Continued

[The table hereunder contains such data as have been received concerning severe local storms that occurred during the month. A revised list will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Mecklenburg and Cabarrus Counties, N. Car.	23	Began 6:16 p. m.	25-65	0	43,950	Tornado	Apparently formed about 5 miles north of Charlotte Airport Station. Path 65 miles long. Two funnels, second one very small and immediately following first. 3 houses destroyed in Mecklenburg County. Storm moved northeastward into Cabarrus County, where 6 houses, numerous barns and outbuildings, trucks, and 1 airplane were destroyed. 4 persons injured. Most damage in vicinity of Concord.
Tinker Field, Oklahoma City, Okla.	25	6:00 p. m.	200	0	6,100,000	Tornado	Second tornado to strike Tinker Field within week. In its 1½-mile-long path, 84 planes were hit by the wind, 35 damaged beyond repair. Tornado accompanied by moderate hail ½ to ¾ inch in diameter. Apparently formed when 2 thunderstorms converged about 3 miles southwest of field; one storm from west, the other from south-southwest. Wind 78 m. p. h. at edge of storm. 1 person slightly injured.
Noble County, Okla.	25	6:30 p. m.	880	0	8,000	Tornado	3 funnel clouds. Path east-northeastward from a point 3 miles east of Billings; 10 miles long. Damage to 1 airplane and hangar, house roofs, barn, and several garages. No injuries. Accompanied by hail.
Hughes, McIntosh, Muskogee, and Sequoyah Counties, Okla.	25	8:30-11:30 p. m.	880	13	328,250	Tornado	Path 102 miles long in Oklahoma, varying from 100 yards to 2¼ miles. Storm advanced at about 34 m. p. h., in hit and skip fashion, entering Arkansas. Low areas escaped extensive damage, although evidence of twisting winds traveling overhead in broken and twisted tops of trees. Accompanied by moderate to heavy hail and rain. Loss of life included 7 in Hughes County, 4 in McIntosh County and 2 in Sequoyah County; 44 injuries reported. Property damage by counties: Hughes County, $155,000; McIntosh County, $101,000; Muskogee County, $20,250; Sequoyah County, $52,000.
Zena (near), Delaware County, Okla.	25	9:00 p. m.		0	11,250	Tornado	1 home and 6 other buildings damaged or destroyed. Path 1 mile long.
Boynton, Muskogee County, Okla.	25	9:45 p. m.	200	0	100,000	do	Funnel observed moving fast; sounded like a fast freight train. 2 injuries. Many small buildings destroyed.
Wyandotte (near), Ottawa County, Okla.	25			1		Electrical	Man killed when walking along road.
Crawford and Washington Counties, Ark.	25	Near midnight		0	14,000	Tornado	2 houses and a number of smaller buildings 20 miles southwest of Fayetteville destroyed: damage, $7,000. $5,000 damage to 1 house and 2 barns at Lee's Creek. $2,000 damage, mostly to roofs and windows at Mountainburg. No injuries reported.
Booneville and Caulksville, Logan County, Ark.	25	do			5,000	Thunderstorms	3 barns and 1 garage destroyed; other buildings damaged.
Brandon, Minn., and vicinity.	26	12:30 a. m.			2,000	Electrical	7 cows killed when lightning struck barn.
Wisconsin, southeastern portion.	26-27				15,500	High winds, glaze, sleet, drifting snow.	Highways hazardous, blocked in some places. Milwaukee streetcar service interrupted by frozen switches and power failures; many electric poles on south side broken by wind; some plate glass windows broken. At Kenosha, glaze on trolley wires curtailed streetcar service.
Birmingham, Ala.	26	4:40 p. m.	Narrow	0	16,000	Probable tornado, electrical.	Several garages and small buildings blown down; roofing blown from several houses. Path short. Approximately $10,000 damage due to lightning.
Aliceville, Pickens County, Ala.	26	7:00 p. m.	100	3	70,000	Tornado	Through west portion of town. Path, southwest to northeast, about 2 miles long. 40 persons injured. Damage mostly to homes.
Ferriday, La.	26-27	Night				Windsquall	Trees uprooted and buildings damaged.
Opelika, Lee County, Ala.	26	11:15 p. m.	80	0	200,000	Tornado	In north side of town, along Western Railway of Alabama, path about 7 blocks long from southwest to northeast. 4 persons injured.
New Orleans, La.	27	1:15 a. m.	300		10,000	Windsquall	4 city blocks affected. Tops of trees, mostly large oaks, broken off, breaking power and communications lines and damaging roofs of dwellings. Tiles blown from roofs. 1 garage smashed by wind.
Cave Springs, Ga.	27	2:00 a. m.		0	5,000	Windstorm, possibly tornado.	One house demolished and 6 severely damaged.
Euharlee to Rowland Springs, Ga.	27	2:50 a. m.	300-500	0	100,000	Tornado	Euharlee, near Cartersville, hit first; a smokestack fell on other buildings, causing heavy damage to roofs. Storm then moved northeastward over a 20-mile course to Rowland Springs, lifting from ground at this point. Considerable damage to buildings; 12 or more homes almost totally destroyed. Other miscellaneous damages.
Hampton to McDonough, Ga.	27	Early a. m.		0	5,000	Tornado	Near Hampton, small store destroyed and several buildings unroofed. At McDonough, several buildings unroofed and courthouse damaged.
Rome, Ga.	27	Early a. m.		0	30,000	Windstorm, possibly tornado.	High winds unroofed portion of chemical plant; chemicals damaged by rain. Other miscellaneous damages.
Bakersville (Marine Studios), St. Johns County, Fla.	27	2:00-3:00 p. m.		0	500	Tornado with hail	Damage confined to broken power lines and fallen trees. Hail, marble size.
Kite, Johnson County, Ga.	27	4:00 p. m.		0	10,000	Tornado	Numerous buildings sustained moderate to heavy damage. Several barns demolished. Power and telephone service temporarily disrupted.
Fairbanks, Alaska, and vicinity.	28	5:02 a. m.-5:00 p. m., A. S. T.				Gale and whole gale winds.	Associated with cold-front passage. Maximum wind velocity of 60 m. p. h. at 5:38 a. m., A. S. T., and estimated gusts of 75 to 80 m. p. h. 35 airplanes damaged at Weeks Field. East end and portion of roof of large hangar (Lavery Airways) blown off. Many communication lines, poles, and trees blown down. Roofs, chimneys, and storm windows damaged. 8,000 square feet of sheet iron roof torn off Administration Building, University of Alaska. No injuries.
Bishop, Calif.	29	1:00 to 4:00 p. m.	20		100	Wind (dust devil)	Tore off old shingle roof and broke out one corner of shack.
Quitman, Tex.	30	8:00 p. m.			5,500	Wind	3 buildings damaged; damage to stored crops, $500 and to buildings, $5,000.
Charleston, Miss., 2 miles north.	30	10:20 p. m.		0	5,000	Tornado	Moved northeastward up creek bottom, destroying 1 residence and numerous trees. Apparently short-lived, touching ground at only few points. No injuries.
Jacksonville, Fla.	31	4:00-4:15 p. m.	300		5,000	Squall and hail	Occurred during a torrential rain of thunderstorm type. Possibly a tornado that failed to reach ground in full force. Damage consisted of uprooted trees, broken power lines, removal of roofing, and water damage to goods. Path about 2 miles long in southwestern section of city.

[1] Miles instead of yards.

SOLAR RADIATION DATA FOR MARCH 1948

[Solar Radiation Investigation Section, I. F. HAND in Charge]

Explanation of Tables 1 and 2 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the MONTHLY WEATHER REVIEW, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 1 appears in vol. 75, No. 3, March 1947, p. 47.

Measurements of total solar and sky radiation received on a horizontal surface at Grand Lake, Colo, will be included in Table 2, beginning with this issue. The station is located at 40°15′ N. lat., 105°51′ W. long., at an elevation of 8,417 feet above sea level. These data are obtained through the cooperation of the Department of the Interior, Bureau of Reclamation, Colorado-Big Thompson Project.

TABLE 1.—*Solar radiation intensities during March 1948*

[Gram calories per minute per square centimeter of normal surface]

Date	Sun's zenith distance									Vapor pressure	
	A. M.				0.0°	P. M.					
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7	78.7°	7:30 a. m.[1]	1:30 p. m.[1]
MADISON, WIS.											
	Air mass										
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
March	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
9	0.69	0.79								1.4	1.7
12	.84	.98	1.11	1.33	1.48	1.22				.6	1.5
13		.70	.84	1.16	1.44	1.19				1.3	3.0
16						.96				6.9	7.2
17	.72	.84	.98	1.21	1.52	1.16	.95			4.7	5.1
20				1.06						6.1	9.4
22	.98	1.04	1.15	1.34	1.53					4.7	5.6
23	.68	.81	1.01	1.11	1.48	1.19	1.02			4.8	6.6
24	.74	.88	1.02	1.18	1.43	1.15				5.8	5.6
25	.52	.59	.74	.90	1.14					4.8	8.7
Means	.74	.83	.98	1.16	1.43	1.14	(.98)				
Departures	-.06	-.11	-.11	-.11	-.07	-.15	-.18				
LINCOLN, NEBR.											
	Air mass										
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
March	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
8				1.27						1.4	2.7
11			.96	1.24	1.50	1.31	1.11			.8	1.2
12				1.31	1.50	1.31	1.11			1.0	2.6
19	.64	.79	.94	1.11	1.42	1.24	1.05	.92	.79	7.4	9.8
22					1.35	1.09	.83	.72	.64	4.4	6.6
23	.79	.92	1.05	1.22	1.45	1.19	1.01	.88	.75	5.1	7.2
24	.68	.79	.94	1.16	1.40	1.17	1.01	.90	.79	6.6	11.8
Means	.70	.83	.97	1.22	1.44	1.22	1.02	.86	.74		
Departures	-.12	-.10	-.10	-.05	-.06	-.04	-.05	-.07	-.07		
CLIMAX, COLO.											
	Air mass										
	3.24	2.59	1.94	1.29	*0.65	1.29	1.94	2.59	3.24		
March	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
2				1.58							
11						1.54					
12				1.58							
13				1.49							
19				1.49							
21							1.40	1.27	1.16		
22						1.49	1.34	1.24	1.12		
23				1.52		1.49	1.38	1.28	1.20		
24				1.54							
27							1.37	1.27	1.14		
28						1.48	1.36	1.25	1.14		
Means				1.53		1.50	1.37	1.26	1.15		
Departures				+.01		+.02	+.03	+.02	+.01		

TABLE 1.—*Solar radiation intensities duridg March 1948*—Con.

[Gram calories per minute per square centimeter of normal surface]

Date	Sun's zenith distance									Vapor pressure	
	A. M.				0.0°	P. M.					
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	7:30 a. m.[1]	1:30 p. m.[1]
TABLE MOUNTAIN, CALIF.											
	Air mass										
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
March	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
2				1.48							
3				1.50							
4				1.53							
5				1.50							
6				1.50							
7				1.45							
9				1.49							
10				1.49							
15				1.47							
20				1.49							
21				1.43							
22	1.08	1.17	1.29	1.44							
23				1.45							
25				1.47							
27				1.45							
31	1.08	1.18	1.30	1.46							
Means	(1.08)	(1.18)	(1.30)	1.48							
Departures	-.05	-.04	-.03	+.02							
BOSTON, MASS.											
	Air mass										
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
March	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
5				1.24		1.30	1.12			.8	1.0
9				.82		.70				4.0	4.8
12				1.21		1.14	1.01			2.1	1.7
13				1.16						1.7	1.9
18				.97						3.8	5.8
25				1.28						2.2.	2.6
26				1.01						5.1	5.3
29				.97						3.2	4.0
Means				1.08		1.05	(1.06)				
Departures				+.05		-.02	+.14				
BLUE HILL, MASS.											
	Air mass										
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
March	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
1	0.86	0.95	1.06	1.33		1.35	1.21	1.03	0.89	1.7	2.7
5	1.08	1.18	1.29	1.43		1.48	1.29	1.18	1.07	.6	1.0
6	1.10	1.19	1.30	1.44						.7	1.3
11	.60	.67	.74							3.5	3.0
12				1.20		1.41	1.22	1.10	1.02	2.1	1.8
13	.94	1.05	1.19	1.37		1.32	1.14	1.02	.87	1.5	1.7
14	.90	1.02	1.14	1.30						2.2	2.7
15				.90						6.1	7.3
18	.65	.75	.85	1.10		1.00	.88	.80	.66	3.8	4.7
20	.81	.92	1.06	1.19		1.23	1.05	.93	.79	8.4	7.6
24						1.19	1.07	.96	.86	6.8	8.3
25	1.00	1.10	1.22	1.33		1.29	1.13	.95	.82	2.5	1.7
26		.96		1.28						5.8	6.2
28		.95		1.22						4.8	4.4
29	.97	1.09	1.19	1.31		1.31				2.8	3.0
Means	.89	.99	1.10	1.26		1.29	1.12	1.00	.87		
Departures	+.02	+.03	+.02	+.02		+.06	+.07	+.07	+.05		
RATIO, BOSTON/BLUE HILL ON COMPARABLE DATES											
				0.87		(0.85)	(0.84)				

*Extrapolated.
[1] 75th meridian time.

Table 3 gives the values of solar and sky radiation plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass.

TABLE 2.—*Daily totals and weekly means of solar radiation (direct+diffuse) received on a horizontal surface*

[Gram calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	New York, N. Y.	Fresno, Calif.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Newport, R. I.	Salt Lake City, Utah	Put-in-Bay, Ohio	State College, Pa.	Davis, Calif.	Toronto, Canada	Ithaca, N. Y.	Boulder, Colo.	East Wareham, Mass.	Honolulu, Hawaii	Pearl Harbor, Hawaii	Summit, Mont.	Soda Springs, Calif.	Grand Lake, Colo.
1948	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Feb. 26	209	331	120	21	359	106	377	64	86	299	451	114	82	298	385	166	375	77	22	366	90	275	273	110	408	432
Feb. 27	385	23	24	342	390	135	110	268	186	294	212	306	211	267	149	355	169	200	215	368	267	458	466	116	104	397
Feb. 28	340	129	326	33	337	152	473	22	434	281	175	39	47	229	63	188	317	15	34	193	55	400	437	271	127	247
Feb. 29	376	151	103	283	438	161	435	133	376	450	491	149	190	424	141	69	445	269	148	189	148	531	466	230	462	388
Mar. 1	357	142	111	364	466	157	54	370	256	220	334	460	464	414	110	363	439	223	321	124	420	538	502	184	490	202
Mar. 2	39	49	286	33	403	170	56	44	270	366	243	101	98	196	20	14	378	56	71	423	111	458	378	278	340	447
Mar. 3	163	279	396	64	510	181	114	203	164	380	458	190	177	274	141	43	477	322	99	149	196	496	494	387	518	386
Mean	267	158	195	163	415	152	231	158	253	327	338	194	181	300	144	171	372	166	130	259	184	451	431	225	350	357
Departure	−11	−111	−107	−88	+57	+24	−30	−50	−3	−49	−10	−87	−92	+18	−75	−51	+51	−34	−86	−49	−65	----	----	----	+21	----
Mar. 4	96	442	293	54	502	190	451	72	102	474	537	114	237	421	481	176	442	441	254	235	240	526	439	470	507	323
Mar. 5	498	317	178	449	482	184	138	427	347	467	516	508	498	418	484	476	324	389	388	348	471	469	515	421	325	406
Mar. 6	301	86	377	401	495	181	56	389	33	448	498	466	482	428	146	318	484	286	337	418	449	533	481	132	380	412
Mar. 7	219	336	493	47	503	200	419	37	451	446	492	74	114	425	226	118	468	51	103	417	126	633	407	239	513	485
Mar. 8	432	292	501	353	243	186	336	244	413	423	505	269	340	160	223	209	72	237	90	388	286	361	348	273	90	284
Mar. 9	31	436	436	234	279	205	207	328	140	330	262	374	394	286	436	263	357	265	218	219	369	144	116	423	400	346
Mar. 10	261	410	320	139	314	104	182	22	417	399	538	48	24	398	307	225	514	257	116	334	36	462	391	482	545	450
Mean	263	331	371	240	403	178	256	217	272	426	478	265	298	362	329	255	380	275	215	337	282	447	385	349	394	387
Departure	−49	+33	+48	−33	+1	+33	−53	−37	−9	+5	+56	−28	−4	+37	+45	−22	+16	+32	−33	−17	−1	----	----	----	+39	----
Mar. 11	46	497	541	86	473	130	540	96	99	476	512	103	161	480	382	42	411	165	63	532	189	378	359	----	473	580
Mar. 12	514	473	543	457	431	143	595	415	476	444	529	458	510	394	518	495	144	418	367	532	390	340	344	----	406	594
Mar. 13	448	478	473	432	74	84	497	442	480	449	329	466	510	260	477	415	111	393	356	506	474	511	424	----	117	575
Mar. 14	404	451	498	323	297	154	363	382	448	352	220	430	443	95	477	385	194	303	331	----	457	628	530	264	224	443
Mar. 15	411	159	252	291	568	146	307	259	53	502	548	307	314	430	112	201	413	16	116	298	339	504	436	380	485	289
Mar. 16	126	347	418	150	156	107	498	136	120	485	474	110	94	360	345	194	192	219	159	475	114	578	396	393	133	561
Mar. 17	412	492	304	435	450	160	490	226	471	150	309	222	235	236	301	90	451	347	171	375	160	616	573	153	484	273
Mean	337	414	433	310	350	132	470	279	307	440	417	300	324	322	373	260	274	266	223	453	304	508	438	298	332	474
Departure	+17	+101	+94	+30	−55	−62	+140	−11	+22	+50	+24	−4	+12	−62	+88	−3	−93	+4	−11	+53	+10	----	----	----	−65	----
Mar. 18	425	312	272	321	443	163	316	428	366	244	596	463	492	392	430	387	369	355	303	375	377	605	602	158	239	360
Mar. 19	122	155	541	62	492	220	462	210	279	243	192	245	261	104	154	12	442	12	49	441	302	560	573	172	359	490
Mar. 20	455	383	424	495	601	217	421	452	305	485	612	497	516	459	451	470	532	440	348	260	504	604	595	170	439	459
Mar. 21	426	163	225	216	580	224	52	226	410	522	592	280	252	460	79	221	526	153	82	385	295	615	548	152	544	624
Mar. 22	332	459	533	231	554	246	105	288	115	537	549	280	290	523	311	104	230	268	27	432	284	618	566	90	360	527
Mar. 23	37	509	549	95	530	305	338	96	219	542	581	91	97	465	332	44	118	275	97	566	125	490	446	193	165	617
Mar. 24	333	498	537	328	221	230	554	320	386	334	136	380	457	194	501	447	176	500	325	564	468	614	554	303	87	619
Mean	304	354	440	250	489	239	321	288	297	447	465	320	338	371	323	241	342	286	176	432	336	587	555	177	313	528
Departure	−37	+21	+58	−80	+39	+14	−8	−17	−23	+5	+70	−51	−57	−41	0	−70	−48	+8	−113	−14	+7	----	----	----	−93	----
Mar. 25	561	433	357	498	637	311	406	482	466	531	444	558	559	158	528	510	493	498	375	516	544	454	452	288	476	498
Mar. 26	350	251	46	257	571	237	522	401	74	546	599	456	392	558	150	291	569	272	193	502	378	402	412	292	624	241
Mar. 27	230	457	349	80	618	97	70	50	233	533	616	34	38	557	91	298	573	64	120	500	55	456	412	279	642	588
Mar. 28	348	553	591	272	350	155	588	131	477	100	223	183	198	472	605	465	124	572	125	505	289	312	319	197	396	590
Mar. 29	580	277	518	452	493	328	581	452	551	129	201	575	589	216	365	529	420	375	388	574	516	522	520	182	343	365
Mar. 30	517	492	278	396	635	280	145	434	306	107	202	490	494	156	439	361	568	468	285	551	500	558	651	328	384	348
Mar. 31	223	81	421	417	605	331	80	448	359	499	605	509	535	566	209	205	595	179	248	624	509	616	595	100	671	581
Mean	402	363	366	339	558	248	342	343	352	391	413	401	401	383	341	380	478	347	248	539	399	489	480	238	505	459
Departure	+43	+4	−18	+7	+86	−37	−52	−33	−4	−83	−1	+6	−10	−23	−10	+4	+8	+50	−49	+67	+12	----	----	----	+111	----

ACCUMULATED DEPARTURES ON MARCH 31, 1948

−826	+1190	+252	−938	+4711	−154	+602	−1477	−1085	−1547	+3044	−1624	−945	−1414	+2254	+679	+847	+1512	−2562	−970	−1155	----	----	----	−525	----

TABLE 3.—*Daily totals and weekly means of solar and sky radiation plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass., during March 1948*

Date	[1] 26	27	28	29	[2] 1	2	3	Mean	4	5	6	7	8	9	10	Mean	11	12	13	14
Gm. cal/cm²	52	365	26	110	624	68	157	200	82	657	608	52	277	440	40	307	103	566	587	465

Date	15	16	17	Mean	18	19	20	21	22	23	24	Mean	25	26	27	28	29	30	31	Mean
Gm. cal/cm²	292	74	177	323	466	196	468	205	202	39	320	271	470	368	10	105	454	390	395	313

[1] February.
[2] March.

[illegible]

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, March 1948

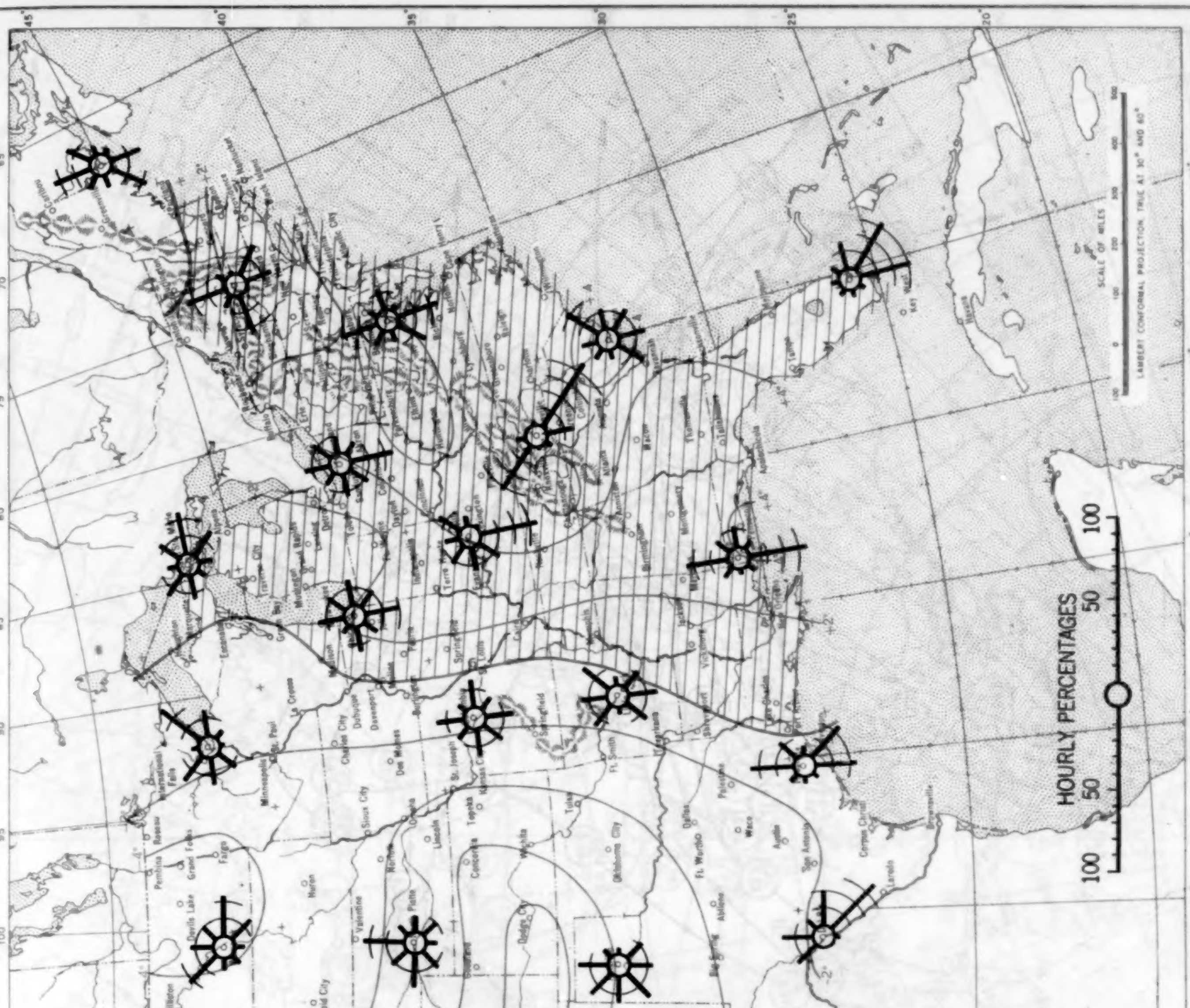
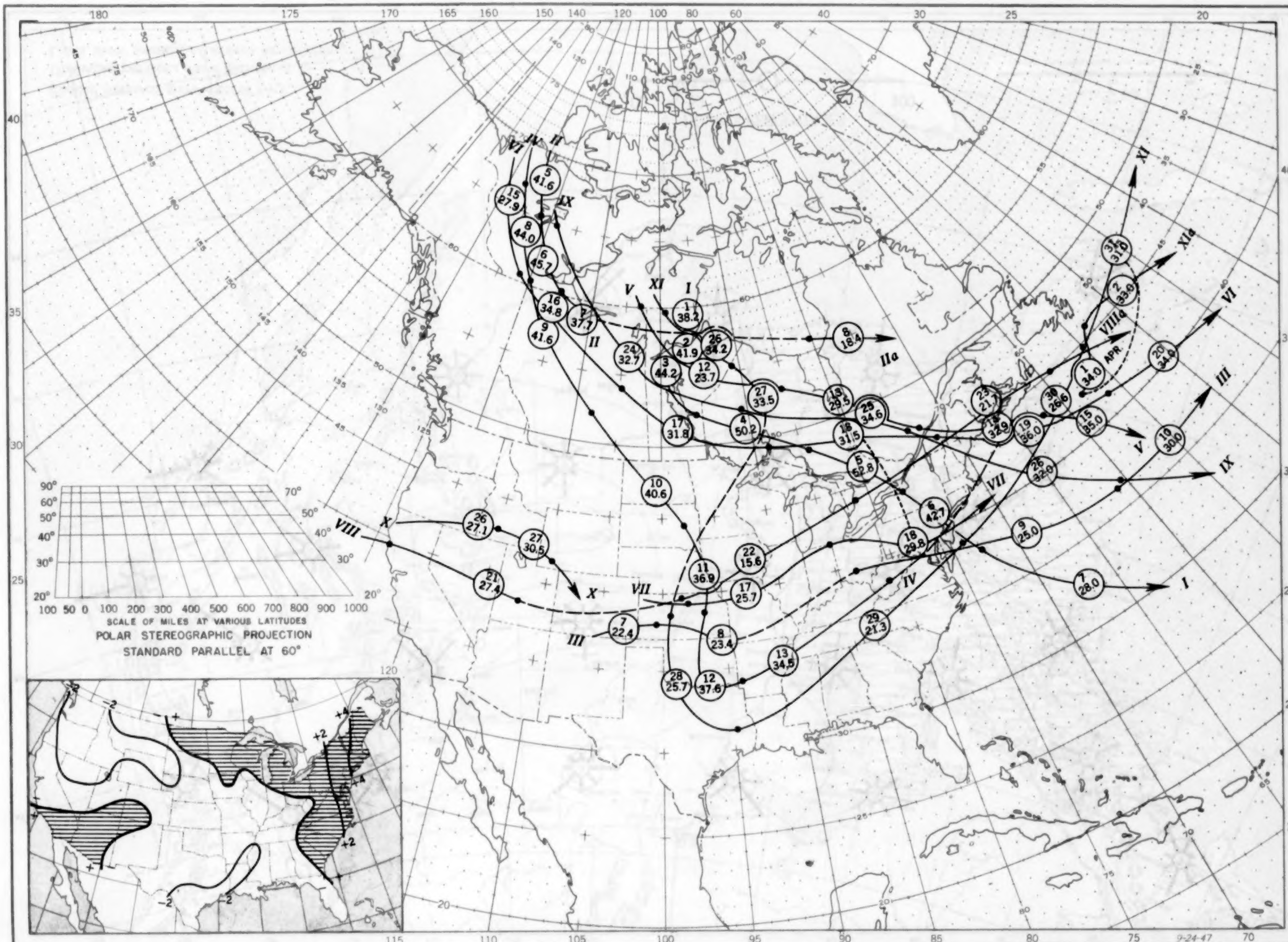
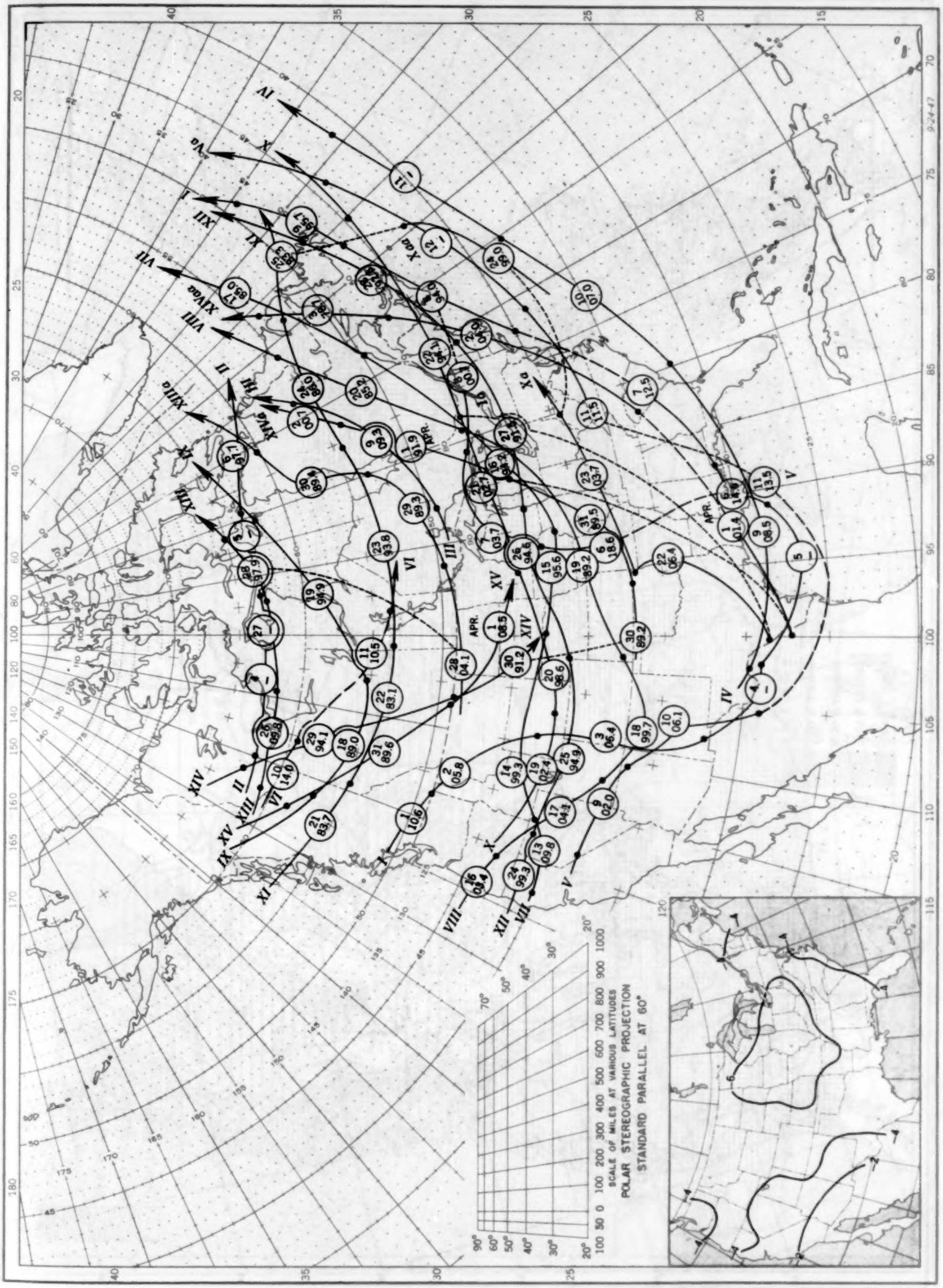


Chart II. Tracks of Centers of Anticyclones, March 1948. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Chart III. Tracks of Centers of Cyclones, March 1948. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of cyclone at 7:30 p. m. (75th meridian time)

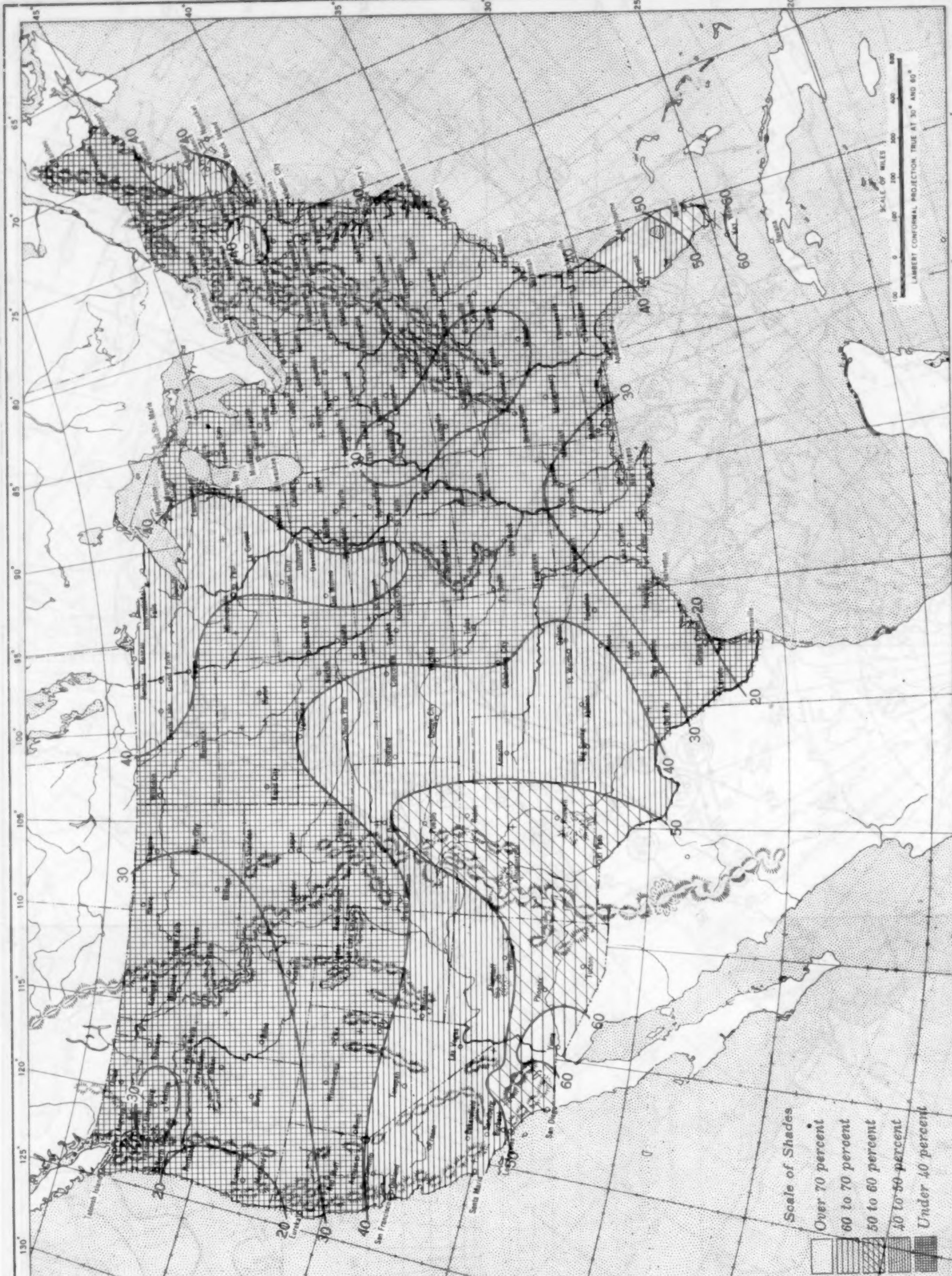


Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, March 1948

Chart V. Total Precipitation, Inches, March 1948. (Inset) Departure of Precipitation from Normal

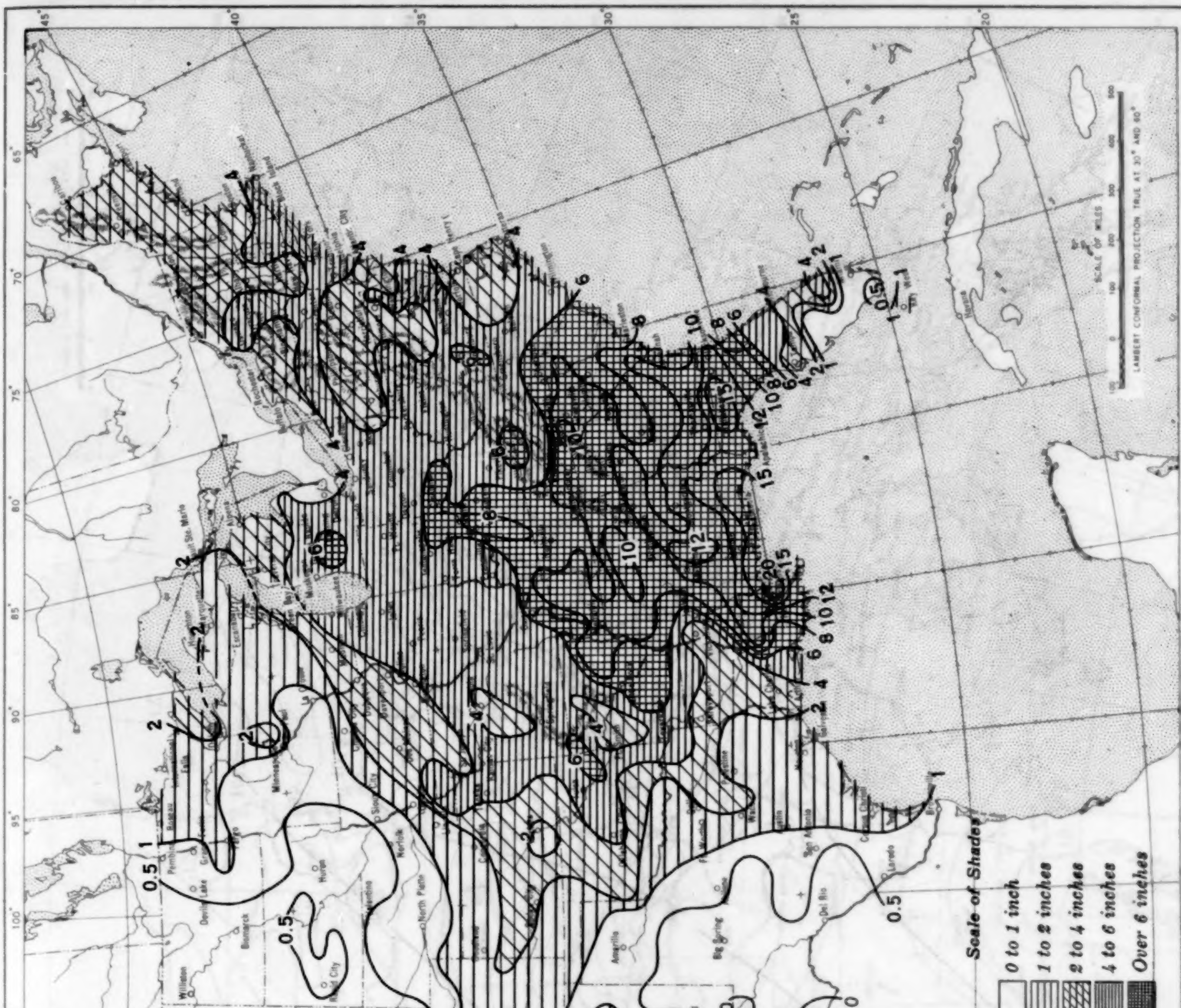
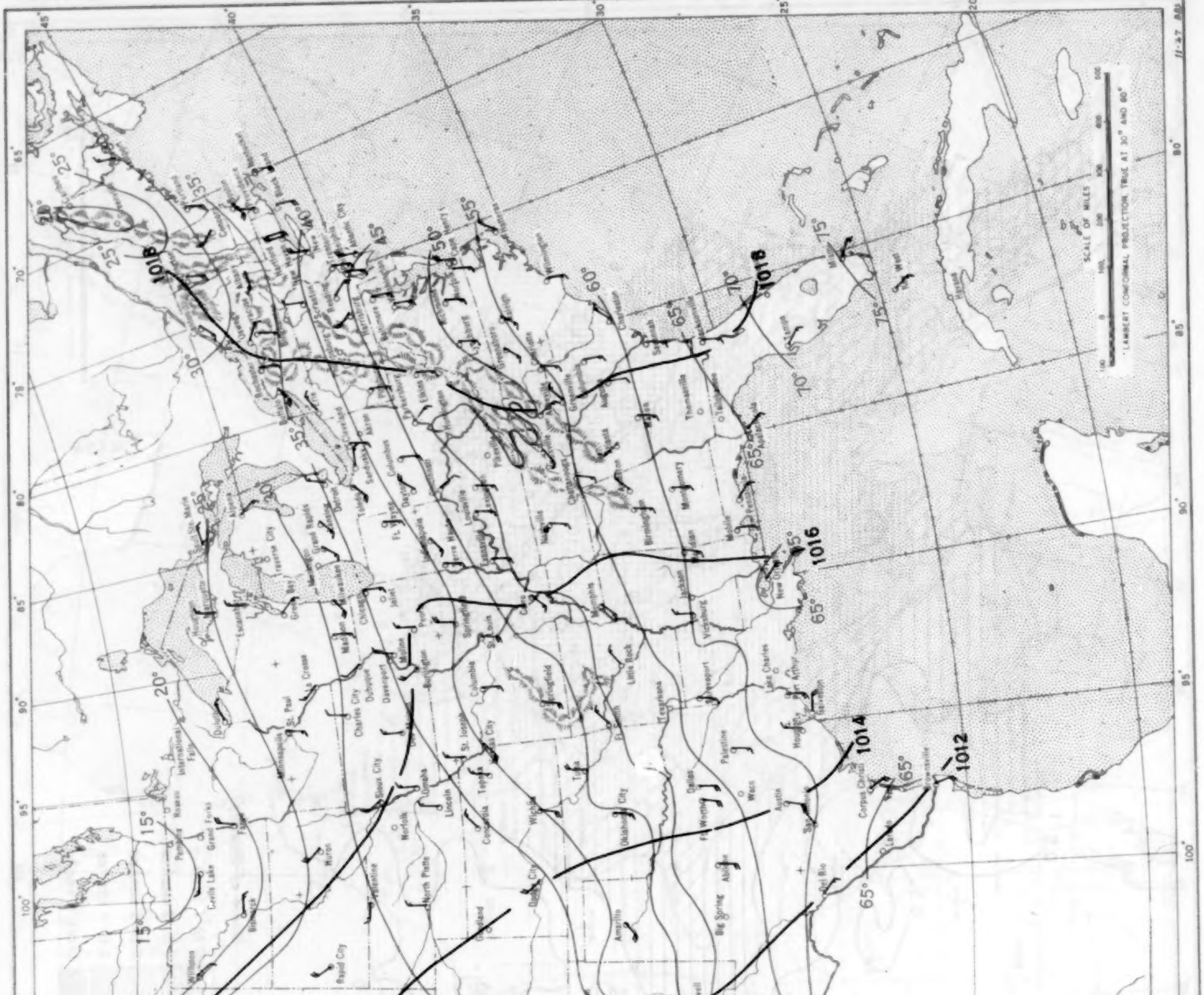


Chart VI. Isobars (mb.) at Sea Level and Isotherms (°F.) at Surface; Prevailing Winds, March 1948



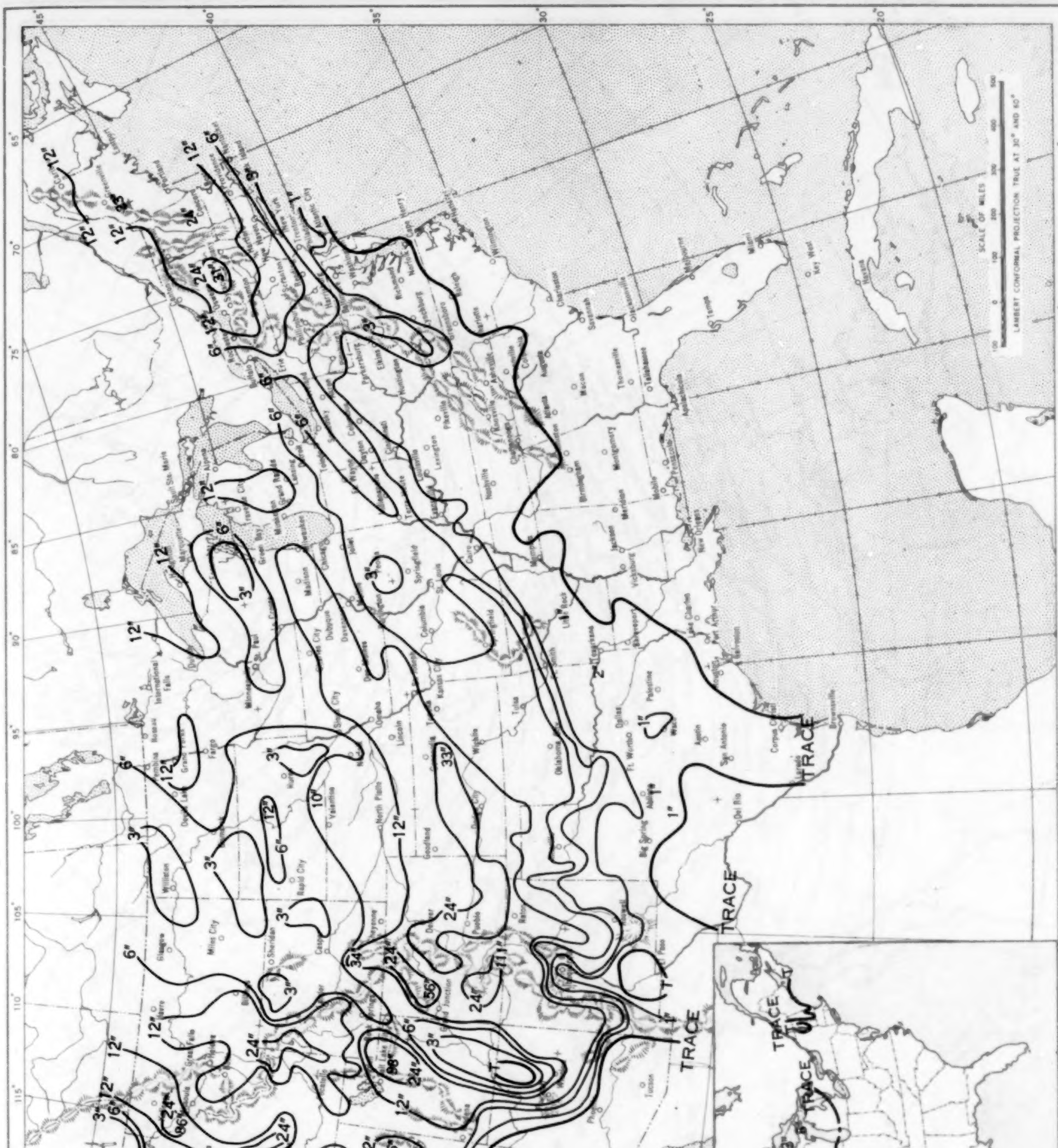
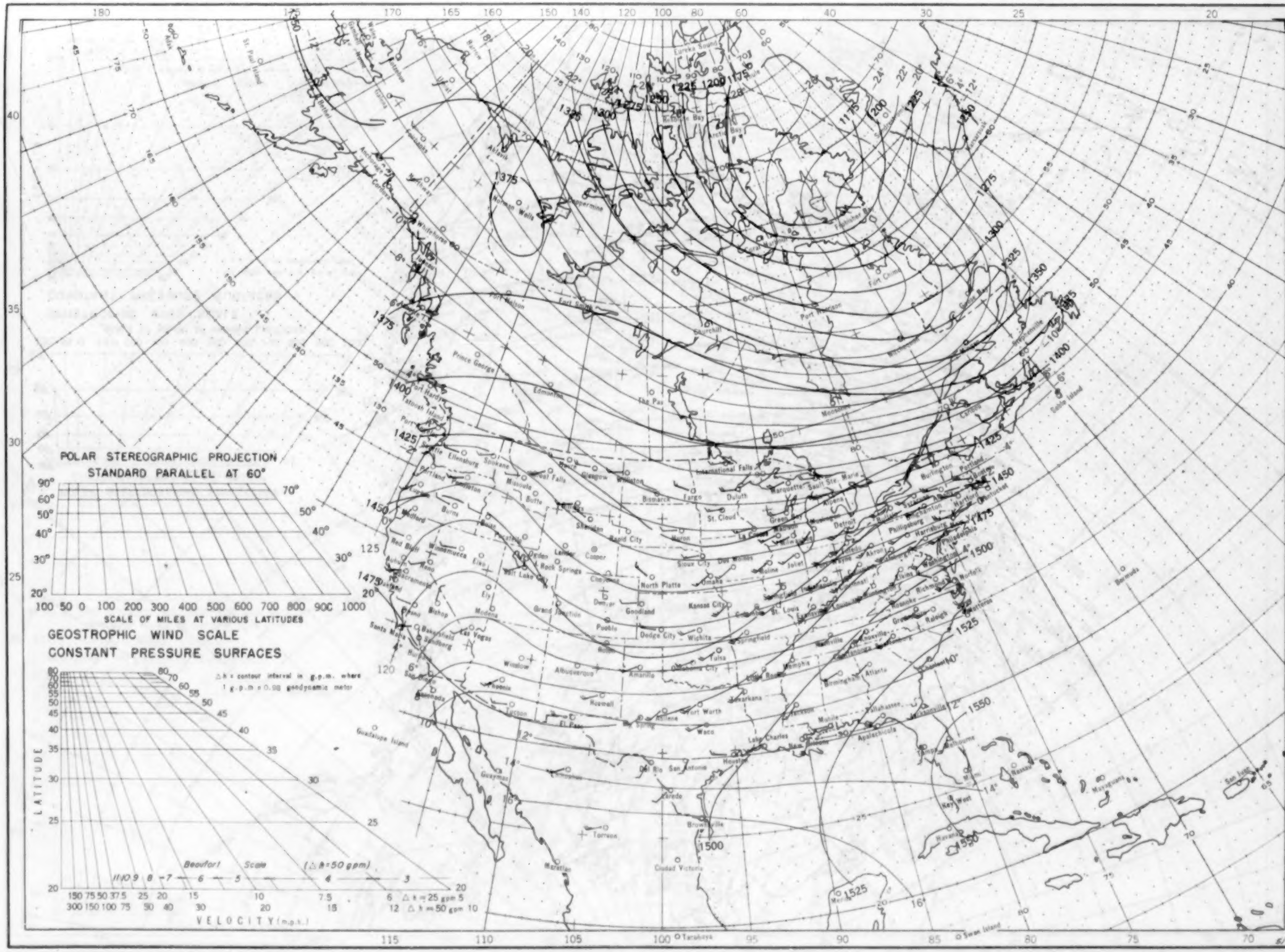


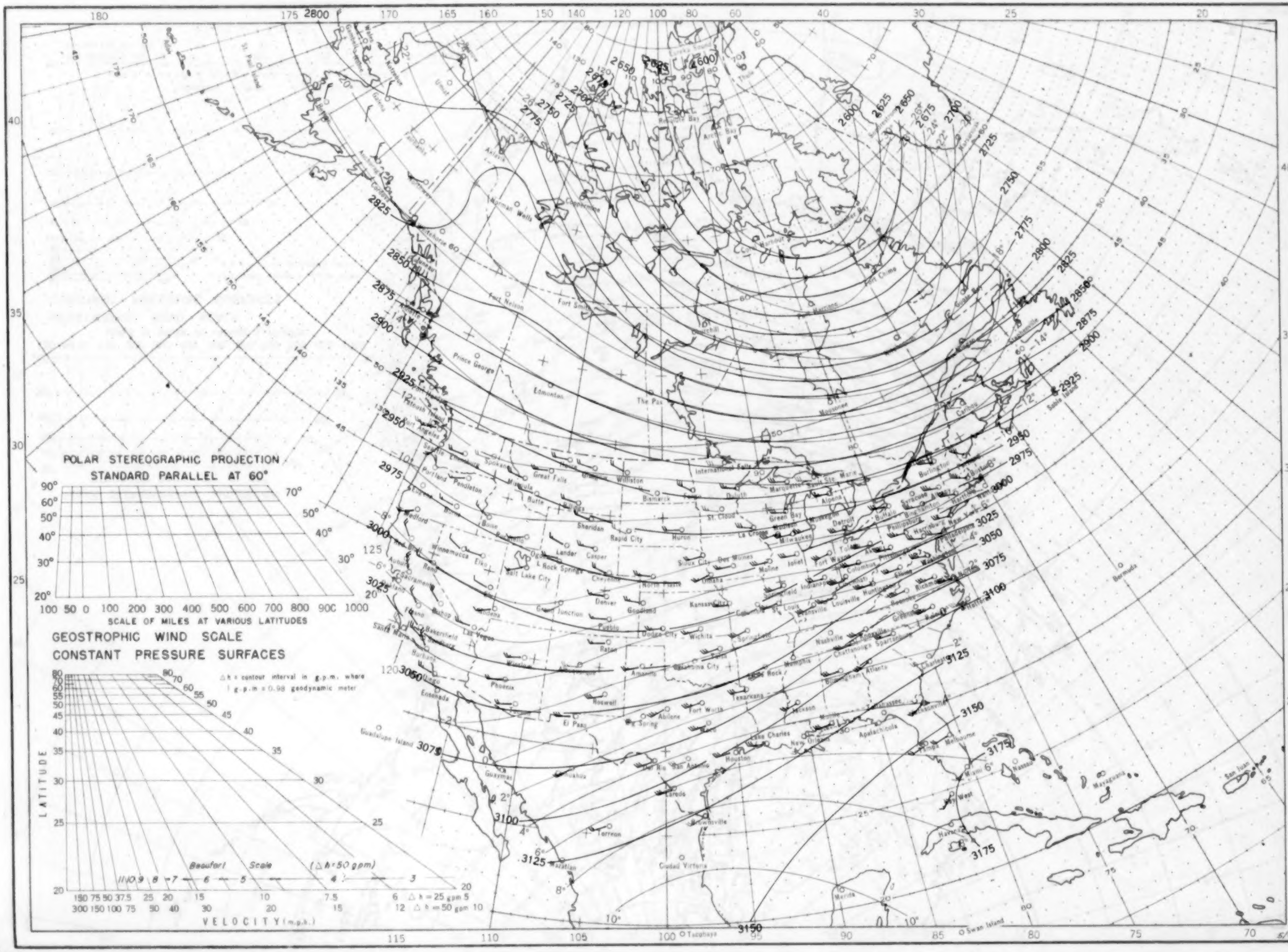
Chart VII. Total Snowfall, Inches, March 1948. (Inset) Depth of Snow on the Ground at 7:30 p. m., March 29, 1948

Chart VIII, March 1948. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2200 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

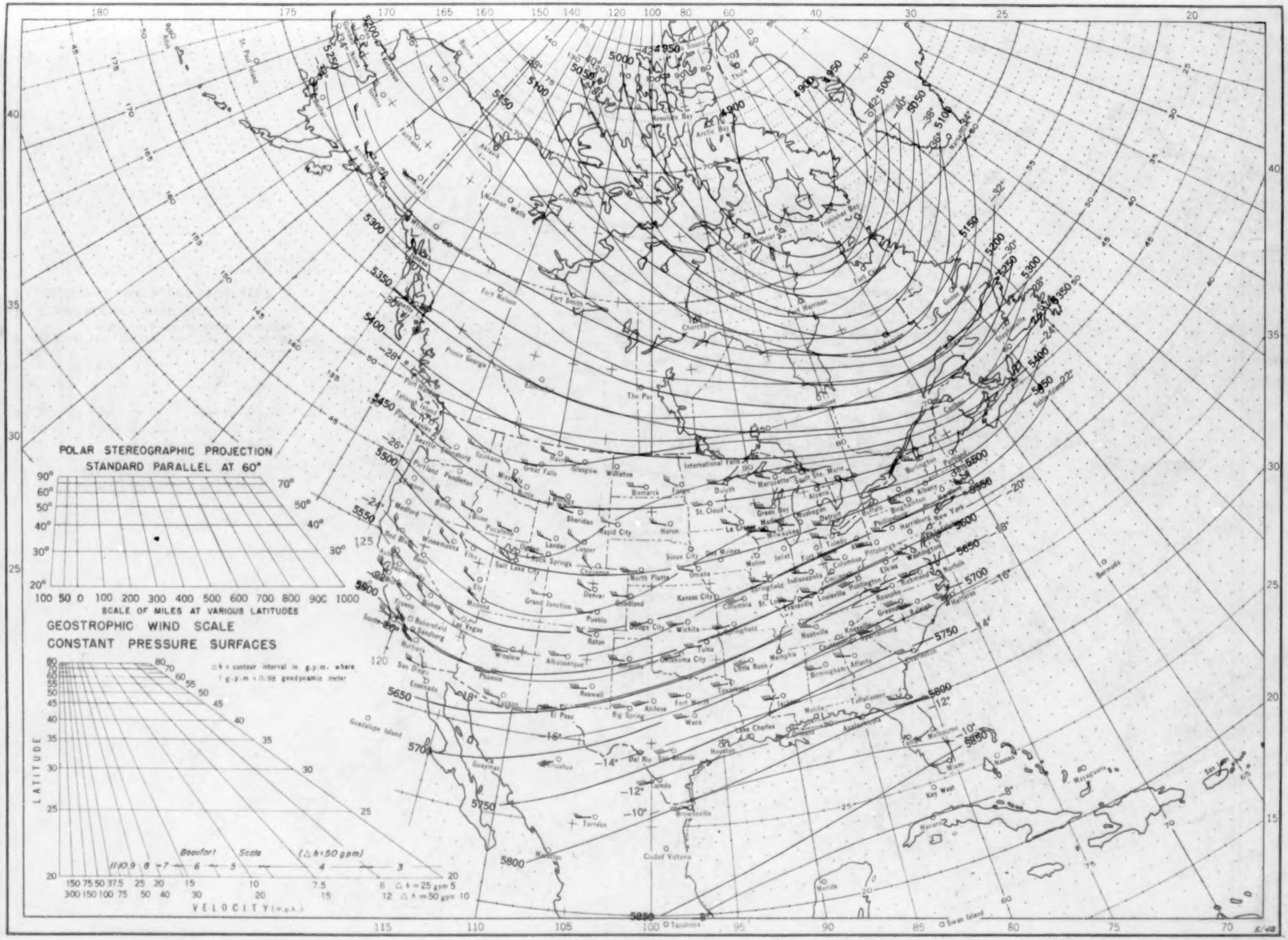
Chart IX, March 1948. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2200 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

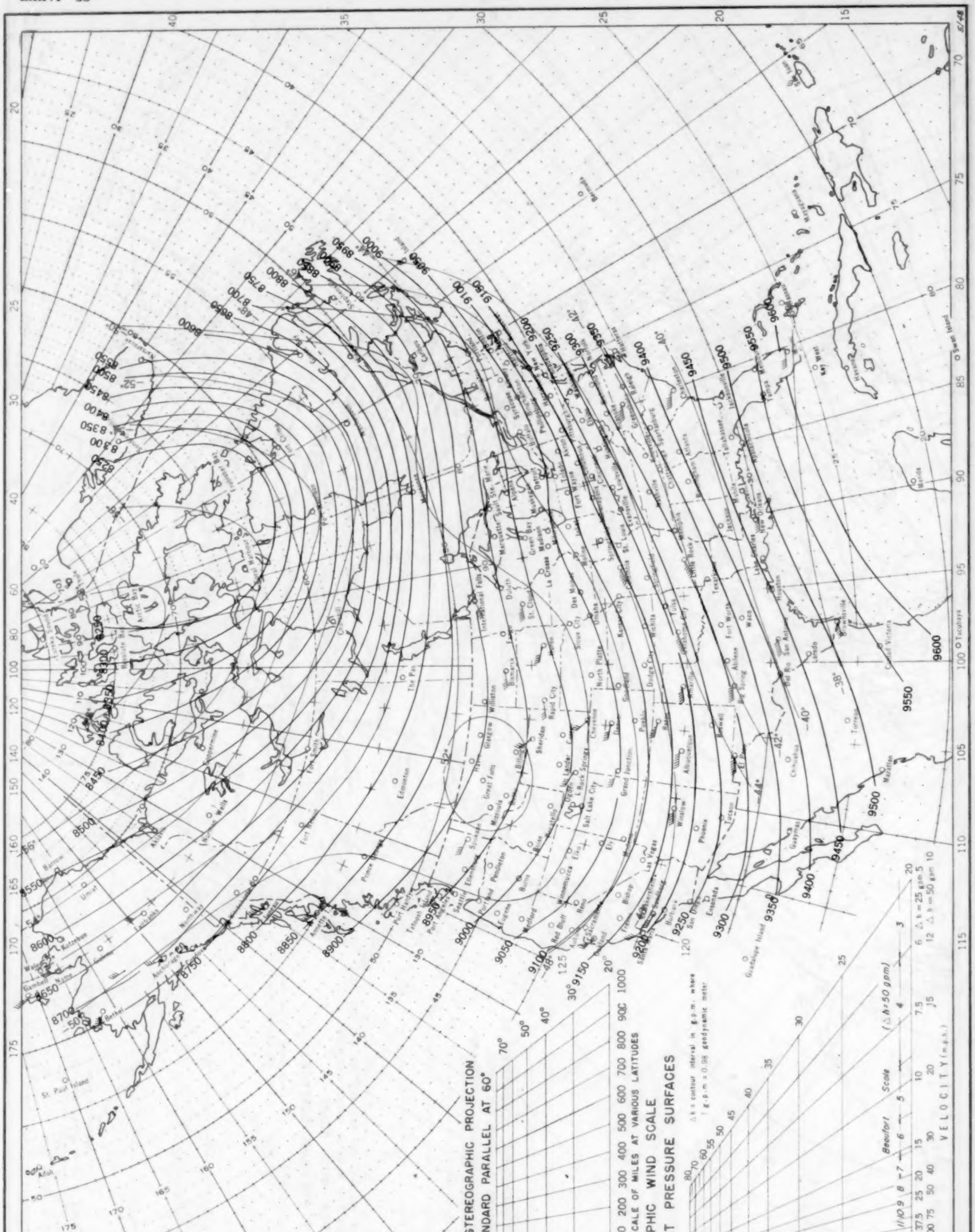
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2200 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart X, March 1948. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2200 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, March 1948. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2200 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.